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AMERICAN GAS ENGINEERING JOURNAL

FORMERLY

AMERICAN GAS LIGHT JOURNAL

VOL. CVIII., No. 13
WHOLE No. 3134

NEW YORK, SATURDAY, MARCH 30, 1918

Subscription $3 per year
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This
No. 18 KOMPAK
AUTOMATIC WATER HEATER
for homes with
1 BATH
2 WASH STANDS
KITCHEN
and
LAUNDRY
$80

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No. 32 KOMPAK
AUTOMATIC WATER HEATER
for homes with
2 BATHS
4 WASH STANDS
KITCHEN
and
LAUNDRY
$100

GOOD OLD SCHOOL DAYS

PROBLEM

A Certain Gas Main Has a Capacity of 600 Feet of Gas Per Minute

Questions	*Answers*
How many No. 6 Automatic Instantaneous Water Heaters could this main supply?	$600 \div 6 = 100$
How many KOMPAK Automatic Storage Water Heaters could this main suppy?	$600 \div \frac{3}{4} = 800$
At $4.00 each, what would be the monthly gas revenue from 100 No. 6 Automatic Instantaneous Heaters?	$\$4 \times 100 = \$400.00$
At $4.00 each, what would be the monthly gas revenue from 800 KOMPAK Automatic Water Heaters?	$\$4 \times 800 = \$3,200.00$
At $175.00 each, what would be the sales revenue from 100 No. 6 Automatic Instantaneous Water Heaters?	$\$175 \times 100 = \$17,500.00$
At $100.00 each, what would be the sales revenue from 800 KOMPAK Automatic Water Heaters?	$\$100 \times 800 = \$80,000.00$
How many 30-light meters would 100 No. 6 Automatic Instantaneous Water Heaters require?	$1 \times 100 = 100$
How many extra meters would 800 KOMPAK Automatic Water Heaters require?	$0 \times 800 = 0$ *Why?*

BECAUSE these KOMPAK Automatic Water Heaters burn only ¾ of a foot of gas per minute and can be hooked onto the original house meter even though it be only a 3 light,

WATER KOMPAK HEATERS

Trade Mark Reg. U. S. Pat. Office

THE LONG-LANDRETH-SCHNEIDER COMPANY
NEW BRUNSWICK, NEW JERSEY

INDEX TO CONTENTS, PAGE 300 ADVERTISERS' INDEX, PAGE 20

KOPPERS

BY-PRODUCT
COKE AND GAS OVENS

The most efficient method of carbonizing coal is in KOPPERS OVENS and the best coke and by-products are produced by this process.

H. KOPPERS COMPANY
Pittsburgh, Pa.

Builders of

By-Product Coke and Gas Plants
Tar Distilling Plants
Ammonia Recovery Plants
Benzol Recovery Plants

AMERICAN
GAS ENGINEERING JOURNAL

FORMERLY THE AMERICAN GAS LIGHT JOURNAL

Vol. CVIII, No. 13 NEW YORK, MARCH 30, 1918 Whole No. 3134

Supplying Gas for Hatching and Brooding in the Aggregate a Summer Load Market that is Well Worth While

Forty Per Cent of All of This Class of Work Being Done Along Gas Company Lines — Gas Has Marked Advantages Over Kerosene for the Purpose—Appliances and Burners to Convert Kerosene to Gas a Standard Stock

By GILBERT C. SHADWELL

In normal times it might be considered that the use of gas in connection with the hatching or raising of poultry would be too small to merit serious attention. Or, perhaps, it might be thought that the trouble necessary would not be warranted by the gas consumption secured.

If either of these points were legitimate arguments against handling such work in peace times (and there is no real reason to suppose this to be so), the contention fails completely at the present time.

In the first place, during the past few winters gas companies have been taking on a large amount of house-heating business, a great proportion of which doubtless will continue with them permanently. Every essentially summer load that can be gotten goes just that far towards keeping that part of the plant which had been occupied with providing gas for house heating busy the whole year through. Thus a magnified importance is attached to the market that poultry incubation affords.

Further, during the war, and especially at this season of the year, the raising of food material is of paramount importance whether undertaken on a large or small scale or whether of an animal or vegetable nature.

It is self-evident that if more poultry can be raised it will make it more generally available in this country, and this will release more of the red meats for shipment to Europe.

40 Per Cent of All Hatching Done Along Gas Companies' Mains

This fact has been realized not only in the country and suburban towns, but to a certain extent there are some who are exerting every effort to raise poultry in suitable sections of our larger cities.

It is more than likely that some 40 per cent of those carrying on this work are located on the gas companies' lines, and it would appear to be a valuable and patriotic act not only to assist those who have apparatus for incubating and brooding by offering to convert their equipment to gas, but to market such incubators and brooders supplied with gas burners instead of kerosene lamps.

In former years it was mainly the farmer who raised poultry. Still an immense amount of hatching and brooding of chicks is done in cities and towns—even by big cities. This year the farmer is preparing to increase his flock many times more than previously, but in addition there are thousands of amateurs who are making ready to breed at least sufficient for their own needs for the year.

For these reasons the gas man can and should help. It should not be difficult to choose a suitable make, and, if it is decided to convert existing machines to gas, the necessary burners can almost always be purchased from the manufacturers of the appliance, or if details as to requirements be supplied to one or other of the well-known industrial gas appliance manufacturers they will usually be able to provide what is needed.

There is, however, no time to be lost if this year's business is to be gotten, and prompt action is necessary.

Kind of Apparatus Used

Now, as in the case of almost any piece of apparatus or process of operation, it is requisite that some knowledge be possessed of the fundamentals involved. It is important that the main principles of the equipment under consideration be at least understood as far as the essentials are concerned.

In the natural raising of chickens the hen sets on the eggs for a period of twenty-one days. She hatches them at the end of that time, and then spends several

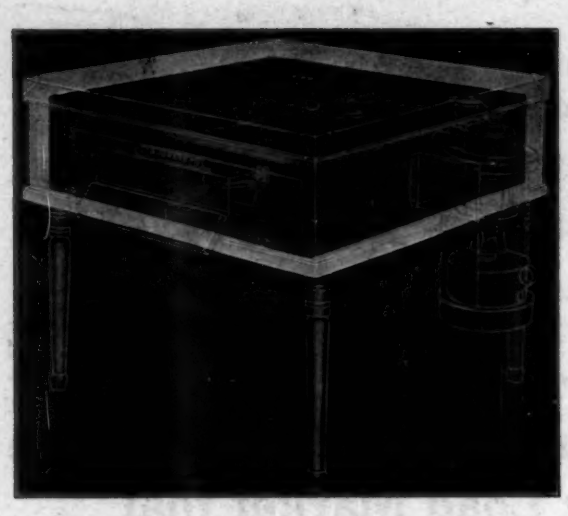

FIG. 1—GENERAL ARRANGEMENT OF AVERAGE INCUBATOR HEATED BY KEROSENE LAMP

weeks more with them until they can take care of themselves.

The process is simulated artificially by two appliances, the incubator taking care of matters up to the time of hatching, and the brooder providing the artificial mother after hatching has been completed.

The whole principle involved is merely one of heat properly applied.

When a hen endeavors to hatch a "setting" of eggs she simply applies the necessary heat and leaves the nest now and again, which affords ventilation to the eggs. An incubator is made to carry out the same function in a manner which will be explained, except that the cooling and ventilation must usually be taken care of by the operator.

It has been found that if heat be artificially applied to the eggs so that they retain a temperature of from 102 to 104 deg. Fahr., they will hatch provided other conditions are properly taken care of. Often any temperature between 100 and 105 deg. Fahr. will bring results, but for greatest satisfaction the means of the first figures—namely, 103 deg. Fahr.—should be maintained.

Use of Thermostat

The maintenance of this temperature is effected by means of a thermostat located in the machine, which acts either directly or indirectly on the source of heat or a combination of both.

Before the subject is further considered, the writer will give a rough idea as to the general arrangement of the average incubator.

Roughly speaking, the fuels for heating are:

(a) Kerosene.
(b) Gas.
(c) Electricity.

The consumption of kerosene is about 2 to 8 pints per day, depending on the capacity of the machine, its insulation and the system of thermostatic control adopted. The cost at 12 cents per gallon is therefore about 3 cents to 12 cents per day of twenty-four hours. Gas probably costs about the same, but it has the important value of being usually constant in supply and unlikely to fail. On the other hand, should the operator fail to fill lamp at any time the result may end in complete disaster of the hatch.

The comparison of fuels therefore is as follows:

GAS

(1) Needs practically no attention.
(2) Flame is constant.
(3) Needs no trimming or adjusting.
(4) Makes no smell.
(5) Gives off no unwholesome fumes.

KEROSENE

(1) Requires lamp to be filled either daily or every few days.
(2) If wick is not trimmed daily it varies. It may also cause flame to go too high automatically.
(3) Chimney, etc., need cleaning.
(4) Always smells after filling and when turned low.
(5) Soots and unburnt oil given off constantly.

Many other points could be cited, but the foregoing are sufficient to justify the uses of gas wherever obtainable.

Fig. 1 shows the general arrangement of the average incubator heated by a kerosene lamp.

It will be noted that the lamp is surrounded by a jacket above the lamp, and within this jacket there is a metal container filled with water, the upper part of this being connected with copper pipes, which form radiators at the top of the incubator.

Hot-Water Heating

These radiators constantly receive and return the water which circulates through them and the heat is radiated down on to the eggs.

The thermostat is connected by a rod to the extension where it connects to the arm of a lever, the other end of which supports a damper suspended over the outlet from the water container or "boiler." This is more clearly seen in Fig. 2.

Should the temperature rise, the damper is lifted off the top of the boiler, which allows a certain amount of the heat to pass out without passing into the water.

On the other hand, should the temperature fail, the damper closes down, permitting the operation to be reversed.

In Fig. 2 the various parts are indicated by arrows:

A—Top on which tray can be rested for cooling and turning eggs.
B—Tray.
C—Thermometer.
D—Radiator tubes.
E—Lamp or other heat source.
F—Thermostat connected to damper.
G—Insulation.

In this article the method of heating has been that of hot water, as this is mainly in use. Heated air, however, is in vogue to quite an extent, but it gives variable temperature throughout the appliance, it dries the eggs and gives its heat unevenly.

Hot water is also to be preferred, owing to the fact that even should the source of heat fail for an hour

or so the heat left in the water may prevent absolute chilling of the eggs.

After the chicks have been hatched, an artificial mother is employed to raise them. This is known as a brooder.

Gas in the Brooder

Here a coal fire may be supplanted by gas, and as the machine is usually located out of doors the gas consumption required is naturally far higher than that for the incubator.

The principle of operation is simply that the cover provides a warm space beneath it in which to keep the chicks comfortable, or when they so desire they can move out beyond the outer skirt into the open.

This appliance is also controlled thermostatically, but it is the writer's opinion that although the methods are effective they are wasteful in that instead of cutting off the heat at the burner they usually "throw away" what is not wanted.

Further details, however, as to construction need not be gone into, as it is believed that sufficient has been said to show the importance of the subject.

It must be most carefully borne in mind that the business to be secured may not be big in individual cases, but it will total to a satisfactory amount in the aggregate, and above all it is a good spring-summer load.

Moreover, it is a constant twenty-four-hour load, which is always profitable to a gas company.

Gas Lighting of Streets and Highways in France

Remarkable Adaptation and Development of Gas Lighting for Suburban and Farm District Highways

By FRANCIS MILTOUN

To the most casual observer it is evident that gas is much more largely used for public and semi-public lighting in Europe than in America. This was so before the war; it is even apparent in France to-day. There are multiple reasons, but perhaps the most insistent war-time reason why gas works should run at full capacity is the by-product which may be made use of, is demanded even, by the needs of war.

The fact has been mentioned before that many of the great routes nationales leading out from Paris are gas-lighted for miles out into the open country. I recall coming in from Fontainebleau by road the other day that I saw a lamp-lighter making his rounds just before dusk, and besides the road, in an open field, was a Chicago-made mowing machine cutting the autumn crop. Gas-lighted farm lands might express the same thing differently.

At an International Roads Congress at which I was a delegate some years before the war (it was held in Bruxells), I remember one section was entirely taken up with the discussion of the various forms of public highway lighting as distinct from that of city streets. Electricity had its big place, particularly in mountainous regions, where the current was hydraulically produced, but the general trend of opinion was that in the neighborhood of big agglomerations and city suburbs gas was to be preferred of all other methods.

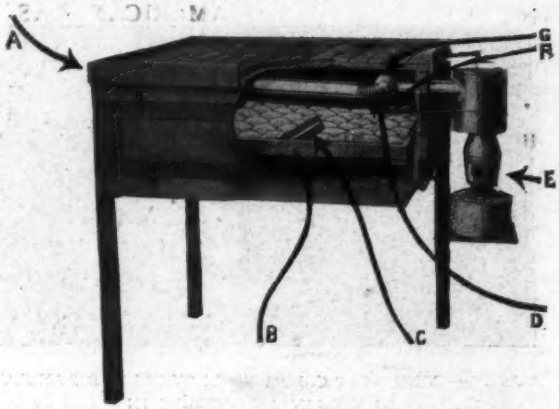

FIG. 2—THERMOSTAT CONTROLS TEMPERATURE

Development Since Eighteenth Century

A valuable report was prepared as to what had been undertaken in France in these very last years before the war put a stop to all new installations by Pierre Tur, an engineer of French roads and highways, and by Edmond Chaix, president of the touring commission and circulation on highways of the Automobile Club de France.

It appears that the first recognized lighting of streets took place in France at the end of the eighteenth century, at about the time that gas for lighting purposes was discovered by Murdock in England and Le Bon in France. During the nineteenth century and in the first years of the present much progress was made by the application of new principles of delivering the illuminant and distributing it by refraction over a wide area. Certainly the street lamps of Paris to-day spread a remarkable brilliancy of light over a considerable space, largely due to the special types of burners and reflectors employed and largely due to the height and disposition of these great cross-corner lamp posts.

Byllesby Employees' Ambulance Damaged by Shell Fire

Word has just been received that the ambulance furnished by the Byllesby employees to the American Field Service in France was damaged in action recently, but will be repaired and again placed in service. A letter from Stephen Galatin, dated the 5th of February, concerning the Byllesby ambulance, is reproduced:

"I am enclosing a photograph of car No. 737, which you gave to the service. This photograph was taken after the car had been sent in from the front, and shows the damage done to it by a shell. The ambulance was, as you know, in Section 29, which was working in the region of Hill 344, a particularly dangerous sector. It had just gone to the Poste de Secours and the driver was waiting there for wounded, when a 210 shell landed near it, but, fortunately, no one was injured. The car had to be towed back, and was then shipped to Paris.

"I felt sure that you would like to have this evidence of the kind of work your car had done, and that it might give you a clearer realization of the work that the service, to which you contributed, had been performing for the past three years in France.

PLATE I—COKE AS IT COMES FROM OVENS IS DISTRIBUTED AS EVENLY AS POSSIBLE IN HOT CAR

PLATE II—CAR IS THEN RUN UNDER QUENCHER COMPOSED OF TWO ROWS OF PERFORATED 8-IN. CAST-IRON PIPE EXTENDING HORIZONTALLY OVER CAR'S LENGTH

How One Company Sizes Its By-Product Coke for Domestic Consumers

Alan H. Harris, Jr., Describes Plant Used by Coal Products Manufacturing Company—Quenching—Corrections Dictated by Experience in Conveying System—Extravagance of Covered Storages to Prevent Moisture Absorption by Coke

The merits of coke as a domestic fuel have been so well established that it will not be necessary to dwell upon them here. However, that the domestic field is capable of a much greater development beyond its present status, and that upon this development depends practically the whole future process of manufacture of the gas industry, is a question that we cannot afford to overlook, declared Alan H. Harris, Jr., engineer of the Coal Products Manufacturing Company, of Joliet, Ill., in his paper presented before the recent annual meeting of the Illinois Gas Association. With the elimination of the candle-power standard, which even the worst pessimist must admit is on its last legs, centralized carbonization in bulk through by-product coke ovens becomes the logical means of gas manufacture, with either high or low pressure distribution, depending upon local conditions.

In the manufacture of gas in this manner, however, the coke problem becomes more of a factor than the gas itself.

At the present time there is no difficulty in disposing of the coke supply of the country in metallurgical channels, but we cannot hope for this large consumption to continue indefinitely, and in lean years, unless another outlet is found for this coke, it will soon become a white elephant and this particular means of gas-making a failure.

In the natural gas fields the producers and consumers are already looking for a substitute, as it is known that while the natural gas supply may not give out entirely, it will diminish considerably in the not very far future; in fact, in some localities the shortage is already felt.

Coke oven gas is its logical successor, and while there is still a lot of beehive coke to be replaced with the by-product variety, this consumption is again depending upon the prosperity of the steel industry, and another outlet must be provided for.

Domestic coke is the answer, and the following pages show how this problem is handled by the Coal Products Manufacturing Company, the manufacturing partner of the Western United Gas & Electric Company, in connection with its metallurgical coke and gas production.

Travels of the Coke

The coke as it comes from the ovens, shown in Plate I, is distributed as evenly as possible in the hot car, which is then run under the quencher, Plate II. This is composed of two rows of 8-in. perforated C1 pipe extending horizontally over the length of the car, the water supply being a 10,000-gal. tank, the bottom of which is 35 ft. above the rails. Fifty to seventy seconds, depending upon the season of the year and the structure of the coke, is sufficient time for the quenching, using from 3,000 to 4,000 gal. per oven.

After allowing a few minutes for the surplus water to drip from the car, and incidentally extinguishing with a small hose any fires still visible through the doors, the car is brought to the wharf, where it is dumped, Plate III.

In this manner the coke is distributed in a thin, even layer over the wharf, and by keeping there at least a push and a half at all times it has ample time to dry and cool before being fed upon the belt.

Feeding Onto the Belt Conveyor

As soon as the car is dumped, the wharf operator extinguishes any small fires that remain in the coke, using a small stream of water under considerable pressure, which combination has been found to give the best results. Properly quenched coke should not show a moisture content over 1 per cent in the foundry size,

and 4 per cent in the run of oven (blast furnace) and domestic sizes.

From the wharf the coke is fed by means of a rotary feeder, Plate IV, to a 36-in. belt (foundry belt, see Fig. 1), which conveys it to the foundry grizzly, Plate V; a series of rotating chilled iron discs, set 2½ in. apart, with 2½ in. between the hubs and edge of the next row of discs. Everything which goes over the grizzly, except an occasional green end, which is picked off by the operator, is foundry coke, and is fed directly into cars, either by a box-car loader or a short flexible conveyor, if an open car is being used.

The coke which goes through the grizzly is taken by the cross-over belt to the No. 3 belt, from which it is delivered to the crusher in No. 1 house, and hence to the domestic screens, and is run over the rotary screens,

PLATE III—CAR AFTER QUENCHING IS BROUGHT TO WHARF AND DUMPED

Plate VI, directly into cars by chute or box-car loader as No. 1 run of oven, or water gas coke.

When blast furnace coke is made a plate at the head of the foundry belt is raised, by-passing the coke around the grizzly directly onto the cross-over belt; from here it is taken by No. 3 belt to these same screens, and after passing over them is loaded directly into cars. The small coke passing through these screens by-passes the crusher to No. 2 belt for delivery to the domestic screens. If neither foundry or furnace coke is being loaded, the run of oven coke is put through the crusher and delivered to No. 2 belt for domestic sizing.

Giving the Coke the Benefit of Cooling and Drying on the Wharf

In case repairs are being made to the wharf or foundry belt of sufficient duration to interfere with the pushing schedule, about fifteen to thirty seconds more quenching is given the coke to eliminate all fires and the hot car is dumped into wharf A, Fig. 1. From here it is immediately run on to No. 1 belt, which delivers it to the furnace screens or the crusher. As this method of handling produces a wetter coke, it is used only as an emergency, it being endeavored at all times to give the coke the benefit of the cooling and drying on the wharf. The additional quenching is necessary because small fires, which it is almost impossible to eliminate, are not visible once the coke is in the hopper, or if they are

PLATE IV—FROM WHARF COKE IS FED ONTO BELT

discovered, necessitate a general drowning to remove.

The coke for domestic screening is fed to the crusher from No. 1 and No. 3 belt, both the crusher rolls being set any desired distance apart, and brought closer together to compensate for wear. These rolls, made of chilled cast iron, are fluted lengthwise and are made in three sections to a roll, bolted onto an inner frame keyed to the shaft to facilitate quick repairs. A by-pass is provided in the chute above the crusher so that when furnace coke is being loaded the screenings do not go through it and the machine may be shut down.

From the crusher the coke is fed directly onto No. 2

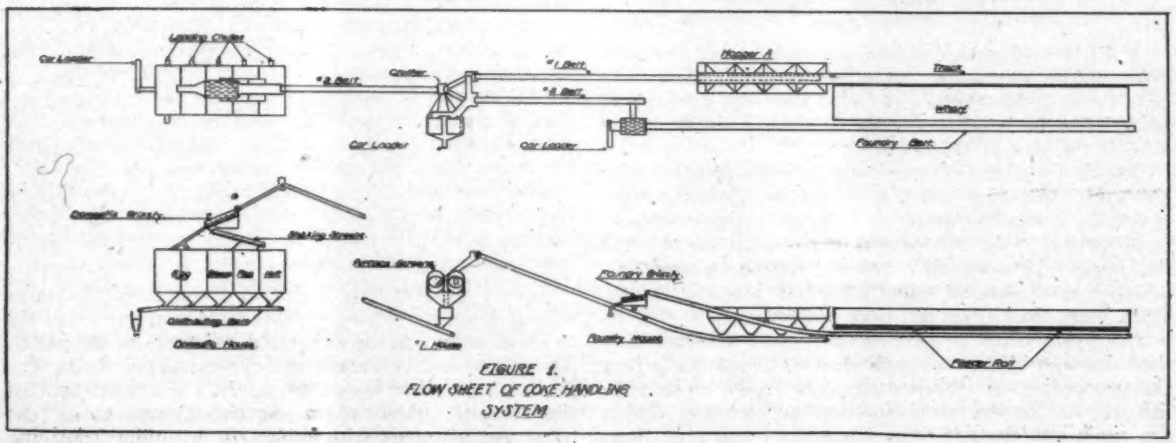

FIGURE 1.
FLOW SHEET OF COKE HANDLING SYSTEM

FIG. 1—DETAILS OF FOUNDRY BELT, ETC

PLATE V—EVERYTHING THAT GOES OVER THIS GRIZZLY IS FOUNDRY COKE

belt and delivered to the domestic house. The first course is over the grizzly, Plate VII, which operates under the same principle as the foundry grizzly, allowing the larger coke, egg, to pass over it, the nut, pea and breeze going through onto the shaking screen beneath. This grizzly is constructed so that the openings through which the coke may fall are 1⅜ in. square, so that the egg coke runs from this size to 2½ in., the normal opening between the crusher rolls. Some smaller coke, of course, gets over the rolls, but very little; not enough to show up to any extent in a car. In the same way a long, thin piece occasionally gets through, but the screening as a whole is very efficient, much more so than can be obtained over a rotary screen, except possibly an exceptionally long one.

By means of a rotary feeder the coke is delivered to the grizzly vertically, and at such a speed that it does not bounce from the rolls, either riding along over them or passing through, as the case may be. The feeder also helps to distribute the coke over the full width of the machine.

Each shaft rotates at a slightly greater speed than the one previous, thus eliminating any danger of the grizzly plugging up. This is also helped by the edges of the discs being fluted, so that the coke is literally carried along, with minimum wear to the discs and breakage of the coke. These fluted rolls were installed after the picture was taken, so do not show up there.

Distinct Advantage Realized

A distinct advantage is realized in removing the large coke before attempting to separate the smaller sizes and remove the breeze, namely, that the amount of material to be handled is considerably diminished, and with it the size of the apparatus.

The first shaking screen installed in connection with the grizzly was not much of a success, being far too small in screening area, and not of heavy enough construction. We learned a lot about what not to do in designing such a screen, however, and the second one, which is now being installed, should prove satisfactory. I am sorry that it has not been in operation so that its actual results could be given at this time, but I shall have them incorporated in a supplement to this paper before the proceedings of this meeting are ready to be published. As the operating features and general design are similar to the first one, however, I can give them here.

The screen is constructed in two sections, hung from a main supporting frame by thin flexible wooden strips, and vibrated by four eccentric rods, actuated from the main driving shaft, two rods to each screen. The two sets of eccentrics are set 180 deg. apart, so that the screens balance themselves, with minimum vibration, to the whole structure. Two hundred and fifty-five vibrations per minute are given each screen, with a travel of ⅜ in., so that it is seen that the whole moving section must be very securely held together. The screen plates and hanger brackets cannot be riveted to the frames, as it would necessitate too much work when they have to be changed. An ordinary bolt with lock nuts soon becomes loose, so on the new screens two nuts and two spring washers are used, which we hope will remain tight.

Each screen is made of two parts, an outer frame hung on the wooden strips and actuated by the eccentric rods, and an inner frame, attached to which are the screening plates, hung on similar strips, but receiving its motion from a knocker, which comes in contact with another knocker on the outer frame at each end of the latter's swing. Pieces of rubber belt are placed between the two knockers to absorb as much of the shock as possible. In this manner the screen plates receive a short, jerky motion of approximately ¾ in. amplitude, which gives a decided hop to the coke, causing the various pieces to separate themselves and screen out the smaller sizes.

PLATE VII—NUT, PEA AND BREEZE GO THROUGH THIS GRIZZLY ONTO SHAKING SCREEN BELOW

Separating the Breeze and Pea Coke

The coke that passes through the grizzly first is run onto a ½-in. screen, through which passes all of the breeze and some of the pea coke. Directly beneath this, and attached to it, is a ½-in. screen, which gives the final separation of the breeze and pea, the latter passing over where it mingles with the coke coming over the ¾-in. top screen and passes onto the second section, where the pea is screened out through ⅞-in. holes, the nut passing over.

Square perforations are used throughout, obtaining a maximum screening surface for a given area, the holes extending to the extreme outer edges of the plates. This screening surface is as follows: ¾-in., 25 sq. ft.; ½-in., 30 sq. ft.; ⅞-in., 26 sq. ft. The total area of the domestic grizzly is 16½ sq. ft. Compare this type of screening plant with others of a similar capacity, 75 tons per hour, and the decrease in screen area, with

TABLE I
SIZES OF COKE PRODUCED

Metallurgical				Domestic (Crushed)						
	Furnace	Water Gas								
Foundry	No. 2 R/O	No. 1 R/O		Egg		Nut		Pea		Breeze
Over	Over	Thru	Over	Thru	Over	Thru	Over	Thru	Over	Thru
2½ in.	1⅜ in.	2½ in.	1⅜ in.	2½ in.	1⅜ in.	1⅜ in.	⅞ in.	⅞ in.	½ in.	½ in.

its accompanying decrease in the size of the operating parts and their maintenance costs, is remarkable.

LOADING CARS FROM BINS

Two methods of loading cars from the bins are employed, depending upon the type of car used. Open top cars are loaded by chutes, direct, but when box or stock cars are used, the coke is run from the bin onto the distributing belt, and delivered by a chute to a box-car loader. All of the chutes contain bar screens with ½-in. openings to remove any breeze and fine coke that may be in the bins, caused by the inevitable grinding that takes place when the coke is in motion. The bins at no time are emptied more than half way in loading a car, so that the coke from the screens has as little drop as possible, insuring minimum breakage.

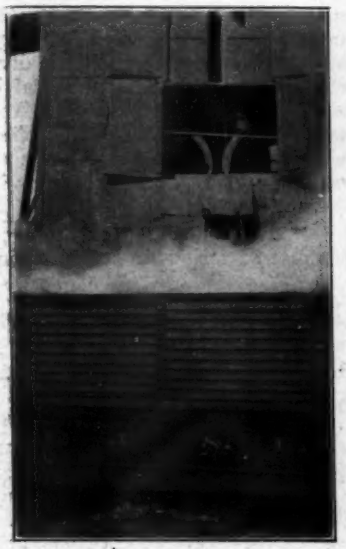

PLATE VI—FROM THE ROTARY SCREENS COKE IS LOADED BY CHUTE OR BOX-CAR LOADER DIRECTLY INTO CARS

PUTTING DRY COKE IN STOCK

When it is necessary to take coke to stock, it is quenched about thirty seconds longer than when delivered to the wharf, and is dumped from the hot car into a concrete pit extending in front of the stock pile. A man is stationed here to quench any small fires, similar to the arrangement on the coke wharf, after which the bridge places it in the pile. If a surplus of any domestic size develops, usually the nut and pea in the summer, it is loaded into the spare hot cars and similarly dumped, although in one section of the pit reserved for each size. In reclaiming the coke from stock, it is loaded by the bridge into hopper cars, which are taken one by one and dumped into hopper A. From here it is fed onto No. 1 belt, and then to the crusher and the domestic screens. The sized coke, if kept properly segregated, can be loaded directly into cars for shipment. If mixed to any extent it has to be rescreened.

Too much emphasis cannot be placed on the necessity of putting dry coke into stock. Coke, when hot, will absorb up to 50 per cent of its weight of water, if given the opportunity, and if such coke is put into a pile it will never dry out. Dry coke, when cold, will absorb practically no moisture, and when in a pile will be penetrated only a foot or so by even a hard rain. This water will remain almost entirely on the surface of the pieces, and two or three days of good sunshine will evaporate nearly all of it. Some engineers advocate a covered storage for coke, particularly in connection with continuous verticals, where the coke is absolutely bone dry, but I do not think the additional expense is anywhere near justified. It would be out of the question in a by-product plant.

In conclusion let me again emphasize the important part that domestic coke will play in the future development of the gas and coke industry. We feel that we have made quite a step forward in the preparation of this article in the plant herein described, and I am quite sure that the Robins Conveying Belt Company have gained a lot of very useful experience in its design that cannot help be reflected in any future plants they may erect to the advantage of the whole industry.

Means of Averting Spontaneous Combustion in Coal Storage

So many inquiries reach the Bureau of Mines, Department of the Interior, concerning the spontaneous combustion of coal that the bureau has issued the following general statement on the subject.

The point of view of the bureau is as follows relative to the technical matter of spontaneous combustion. The wisdom of establishing large storage piles is, of course, another matter which must be determined from the facts in each case.

The conditions of storage of coal are so various as to make it necessary to apply general principles in each case rather than specific directions.

It is to be recommended that coal should be stored in small quantities as near to the point of consumption as possible. Small coal piles rarely ignite from spontaneous combustion. Coal should be stored near the point of use to avoid rehandling, extra transportation and the degradation of size which follows each rehandling. For these reasons the bureau would advocate storage, so far as possible, in the bins and yards of the ultimate consumer, thus dividing the risk of loss from spontaneous combustion. If large storage piles are necessary, certain general principles must be borne in mind. The generation of heat is the result of slow oxidation of the coal surface. The oxidation is much more rapid from freshly mined coal or from freshly broken surfaces. The oxidation rate increases rapidly with increased temperature.

Different coals have different oxidizing rates. These facts lead to the following recommendations:

Where there is choice of coal to be stored, that having the lowest oxidizing rate should be chosen, if known.

Between two coals, that which is least friable, and therefore which presents the least total coal surface in the pile, should be selected.

The method of handling should be such as to produce the least freshly broken coal surface.

The coal should be as cool as possible when piled. Piling warm coal on a hot day is more likely to produce spontaneous combustion.

The coal must be kept from any extraneous source of heat.

Alternate wetting and drying of coal during piling is to be avoided if possible.

The fine coal, or slack, which furnishes the larger coal surface in the pile, is the part from which spontaneous combustion is to be expected. Piling of lump coal where possible is therefore desirable.

In the process of handling, if the lump coal can be stored and the fine coal removed and used immediately, the practice prevents spontaneous combustion in coals which would have otherwise given trouble.

The sulphur content of coal is believed by many to play an important role in spontaneous combustion. The evidence on this point is still conflicting, but to play safe, it is desirable to choose coal having a lower sulphur content, when choice is possible.

There is a current belief that dissimilar coals stored in one pile are more liable to spontaneous combustion. The evidence on this point is also conflicting, but to play safe, it is advisable to store only one kind of coal in a pile.

The ground on which a coal pile is built should be dry.

The foregoing recommendations are all derived from the factors affecting the heating of coal.

There should be no spontaneous combustion, whatever the heating rate, provided the heat is carried away as rapidly as produced. This fact brings about the following recommendations:

Coal piles should be so made that there is ready movement of air for ventilation throughout all parts of the coal pile. This is the condition when the entire pile is made of coarse lump coal. With ordinary coal piling this is difficult.

The surfaces of coal piles should be so exposed as to allow the pile to cool; or else the coal should be so stored that air circulation within the pile is very small. When the air circulation is reduced to a minimum, as in an air-tight bin with no opening in the bottom, the oxygen of the air is soon removed and the mass of the coal lies in an inert atmosphere, except for small local circulation near the surface. Air-tight bins are usually impracticable, but the following practice is recommended to approximate these conditions:

In making a coal pile of mixed sizes, the coal should be so handled as to make a homogeneous pile and prevent the segregation of coarse and fine coal. This frequently determines the most desirable machinery for unloading coal.

It is common practice to limit the height of a coal pile, this for two reasons: A pile too high crushes the lower layers of coal, producing more fines; the larger the pile the less heat-dissipating surface there is exposed in proportion to the heat generating capacity of the pile. Twelve feet in height is a common limit.

Whatever precautions are taken in choice and handling of coal, provision should be made for keeping track of the temperature rise in a coal pile and for rapid rehandling of portions of a pile in case of excessive heating. In a coal pile covering a considerable area, it should be so subdivided that in case of spontaneous combustion of a portion, the heat will not be transmitted to the whole pile, thus accelerating the heating of portions of the pile which normally would have remained cool.

To keep track of the temperature of coal piles, it is recommended that half-inch iron pipe be driven vertically into the pile at distances of 15 or 20 ft. apart. A maximum thermometer lowered into the pipe to varying depths will indicate the temperature of the pile opposite the thermometer.

A survey of the pile and a survey of the temperature of all parts of the pile should be made twice a week during the first three months after the pile is made, and once a week thereafter until the pile has evidently ceased to heat. As soon as any portion of the pile reaches a temperature of 150 deg. provision should be made for removing that portion of the pile. Actual removal need not begin until the temperature has reached 180 deg., but at these temperatures the rate of oxidation is dangerously rapid. The object of rehandling the coal is to allow it to cool below a dangerous temperature. Any method of rehandling which does not allow of cooling will only transfer the difficulty from the old pile to the new one. It is usually useless to employ water in an attempt to cool a coal pile.

Lack of provision for rapid reloading, cooling and repiling of coal is the cause of serious loss from spontaneous combustion.

Coal Shortage Prompts Spartanburg Company to Urge Gas Conservation

The South Carolina Light, Power & Railway Company, Spartanburg, S. C., is again confronted with a shortage of gas coal and the prospects of getting any in the near future are slight. The plant is now using steam coal, which makes a very low grade of gas, and the management requests the gas consumer to practice economy.

The following statement was given out recently by officers of the company:

"Unless the gas consumers of Spartanburg give us their utmost co-operation in reducing to the absolute minimum the consumption of gas the plant will in all probability be obliged to close down for perhaps an indefinite period. If the gas plant is to be kept going sufficiently to keep the mains from getting 'dry,' which would cause a delay of several days in starting operations anew, the gas-consuming public must save gas as never before in the history of this city, and must make no use of gas whatever except where such use is absolutely necessary."

With a considerable reduction in the consumption of gas, the company believes it will be able to keep the plant running until some further shipments of gas coal can be secured.

Laclede Company to Close Sub-Stations

C. L. Holman, president and general manager of the Laclede Gas Light Company, St. Louis, Mo., recently announced the fact that the company would close all of its five sub-stations, and that consumers paying their bills at these sub-stations can continue to pay them at the neighborhood drug stores.

The company will discontinue its pipe-fitting department, and all connections for gas ranges in the future will be given to local plumbers.

They will lay no new gas mains during the present year, and will not cater to new business. Conditions during the last winter were chaotic with the company on account of the shortage of coal, and they do not see any relief at the present time.

All the branch offices of the company have been notified to dispose of their stock of stoves and fixtures. The company will not continue in the fixture business, but they will sell gas stoves at the main office.

The Situation for Merchandising the Gas-Fired Washing Machine as It Exists To-day—Couldn't be Better If It was Made to Order

The members of the commercial section of the Peoples Gas Light & Coke Company, of Chicago, at their last meeting were treated to an exposition on "The Gas-Heated Washing Machine and How It Should Be Sold," which should be of interest to anyone handling this appliance.

The paper, written by W. D. Roberts, manager of the laundry equipment section of the Peoples company, is a concise bit of straight-to-the-point advice to the gas appliance salesman coming from a man who has made a thorough study of the field, the machine, its uses.

Perhaps the most significant statement in Mr. Roberts' treatise is this:

"We have a situation to-day that could not be better for the washing machine business if it were made to order."

Thorough knowledge of the product, absolute confidence in its utility, and optimism form the key to this situation, he points out. After discussing the basic principles of the various methods of washing clothes by machinery, Mr. Roberts says:

What Washing Amounts To

"Washing clothes simmers down to one point—that you have to put the suds through the fabric in order to cleanse it."

Then he goes on to explain why the gas-heated washing machine is the only 100 per cent efficient machine for this purpose. He says:

"A washing machine without heat is only half a machine. A washing machine without heat is like an automobile without a starter."

Regarding the merchandising of the product, he says:

"The man who would be successful in the sale of gas-heated washing machines should never lose sight of the fact that every woman is interested. In every home the family washing is a most important problem; every family has clothes to be washed—rich or poor, large or small, the family washing must be done week after week. And there is nothing else in the line of household labor that takes so much time and hard work or is so thoroughly disagreeable to the housewife.

Not Too Expensive

"Some women will tell you frankly that they are interested. Others will try to hide the fact. But you are safe in assuming that every one of them dislikes the drudgery of wash day and would welcome an op-

(*Continued on page* 298)

Consumers Tell of Advantages of Industrial Fuel Gas

Insurance Rate Reduced from $3.18 Per Hundred Dollars to $1.51 in Shingle Plant—Fuel Cost of Gas Equivalent to Oil at 5 Cents Per Gallon—Sixty Similar Plants in the Country; This the Only One Using Gas as Fuel

Among the innovations brought forth by the Illinois Gas Association convention was that of the gas consumer telling the gas man how greatly he (the consumer) was being benefited by the use of gas. C. H. Kallstedt, one of the industrial gas salesmen of the Public Service Company of Northern Illinois, instead of reading his prepared paper on "New Uses for Industrial Gas," showed by stereopticon slides more than a score of recent installations, and then called on some of the consumers to say what they think of gas as an industrial fuel.

Automobile Motors Plant

D. B. Geesman, of the Buda Company of Harvey, Ill., manufacturers of automobile motors and railway equipment, said his company is using gas for eighteen different purposes. The consumption of gas by this one customer of the Public Service Company is between ten and twelve million feet per month. The company operates what is believed to be the largest core oven in the United States.

Prepared Roofing Plant

A representative of the Winthrop Shingle Company even went to the extent of preparing a brief paper on the good his company was getting from the substitution of gas for fuel oil. He said:

Out of about sixty prepared roofing plants in the United States so far as I know ours is the only plant using gas for fuel, all others using either coal, fuel oil or superheated steam.

We, unfortunately, up to February a year ago used fuel oil for melting our asphaltic compounds, which was the cause of a bad fire which put our plant out of business for two and a half months. Up to that time we were unable to keep the plant fully insured, especially in first-class companies, on account of the hazard of burning fuel oil under open tanks loaded with inflammable materials inside the main building.

While preparing our plans for rebuilding after the fire, a gas salesman of the Public Service Company called on us and told of the wonderful possibilities of gas (which was something entirely new to us). The proposition sounded so good that we were naturally interested, especially so since we thought that we had found a substitute for fuel oil.

Our old method was to melt the asphalt in two large stills, one for saturating and one for coating, which were located about 30 ft. from the main factory building. We heated these asphalt compounds to between 400 and 475 deg. Fahr., depending upon the class of materials we were going to make. We then pumped these compounds to two large tanks, which were a part of our machine inside the factory building, and in order to keep the proper temperatures we burned fuel oil under each tank.

We were told by the insurance companies that we would have to get rid of these fires inside the building before they would fully cover us. Therefore, we installed a circulating system, where we pumped hot asphalt from the still house to the machine through steam-jacketed lines, then back to the still house for reheating.

"THE MODEL ROOFING PLANT"—NATIONAL BOARD OF FIRE UNDERWRITERS

Since doing away with the inside fires we are classed as the model roofing plant by the National Board of Underwriters. This change has reduced the insurance rate on this building from $3.18 per hundred to $1.51 per hundred. In order to make the new system a success we put our heating problem in the hands of Mr. Clark and Mr. Kallstedt, of the Public Service Company. They converted these fuel oil furnaces into gas furnaces, and at first had considerable burner trouble, but after a great deal of experimenting with various kinds of burners, Mr. Clark finally designed a burner which was a perfect success. These burners have now been in about ten months, burning continuously twenty-four hours a day, and are still in first-class condition. Last fall we put in a third still, the furnace being designed by Mr. Clark. This has proved such a success that we are now installing two much larger stills.

The cost of our heating with gas, not taking its many advantages into consideration, such as saving in insurance (handling, storing, waste, equipment and power for operating blower when burning fuel oil as near as we can figure it), is about the same as fuel oil at 5 cents per gallon.

I might add that we use gas for heat in our offices, using gasteam radiators, which are a great convenience, as we were not forced to close our offices for a day this winter for the want of steam when repairing our boiler.

Gas Washing Machine Situation

(*Continued from page* 297)

portunity to do away with its disagreeable features. This is a vital point to keep before you. The woman who admits her interest may have reasons of her own for not purchasing at once. Find out what these reasons are. Show her what the machine will save in time and labor and in wear and tear on the clothes. Make her realize that human labor and health are too expensive to be doing the washing the way her grandmother did it. That it is poor economy to waste so much strength and energy when less than 5 cents worth of gas and electricity will do the work for her. Bring home the fact that the time spent in doing the family washing could be used to good advantage in a dozen other ways, especially so at this time. We have a situation to-day that could not be better for the washing machine business if it were made to order. Economy is the watchword of the hour, the demand of the nation is to 'eliminate waste through increased efficiency,' and that's just what you do when you sell a washing machine.

"Perseverance is half the battle. Keep after your prospects. When you know you have a woman considering a machine, don't give her a chance to forget it. She is going to buy sooner or later. When she does buy, sell her the best. Sell her the 100 per cent efficient machine, *the gas-heated washing machine.*

"Now about price. Don't let anybody tell you washing machines are too expensive and that they cannot afford it. The people who say that, surely have not given the matter any thought. They have not analyzed the situation. You will find Victrolas, pianos, expensive lamps and fixtures in almost every home, and no washing machine. What's the answer? The whole matter resolves itself into this—people buy what they want. They have these aforesaid 'luxuries' because they *wanted* them, and they found a way to get them.

"Thousands of people are making sacrifices every day in the year to purchase a 'luxury' and thinking nothing of it, simply because they wanted it bad enough to do so. Make them *want* the washing machine, and they will buy it and they will be buying a necessity and not a 'luxury.'

"A purchase they will never regret. A purchase which will pay for itself over and over again. Don't forget that the people who buy most of the gas-heated electric washers are the women who do their own washing, and who buy the machine to save time and hard work."

Gas Situation In Chicago Laid Before Consumers In Unique Way

Through the use of a rider attached to its current bills, the Peoples Gas Light & Coke Company, of Chicago, has just had a heart-to-heart talk with the 700,000 families served by the company on the subject of "The Gas Business in War Time."

The company introduces its message to the consumer with the statement that it believes its customers are fair minded.

"We have always found them fair on every question when they knew the facts," the statement goes on.

The bills carrying this rider had not been out three days before the company was convinced that its faith in the fair-mindedness of the consumer was justified. For by mail, by telephone and in person the con-

sumers after reading the statement hurried to let the gas company know that they—the ones who were to pay the bills—were willing that the company should get the increase in rates for which it has petitioned the public utilities commission, and which the city council is opposing with all its might.

This statement in a few hundred words tells the consumer what he failed to learn from the columns and columns of matter that has been printed in the Chicago daily papers regarding the controversy between the gas company and the city hall crowd. It tells the gas consumer exactly how it happened that a company which had practiced every economy, had seen far into the future, and had put aside all thought of financial gain for the single purpose of literally keeping home fires burning during a winter of unprecedented blizzards, was rewarded for these efforts by a deficit of nearly half a million dollars.

The rider follows:

The Gas Business in War Time

The Peoples Gas Light & Coke Company believes its customers are fair minded. We have always found them fair on every question when they knew the facts. Therefore, we want them all to know exactly why we have asked the authorities for permission to add a temporary emergency charge of 22 per cent to the monthly gas bills.

The present low rates for gas (in force since Aug. 1 were based on the experience of 1916 and previous years, and were figured out early last summer. At that time nobody could foresee how the war would upset everything. You know from daily experience how the prices of practically everything you buy have gone up 25 to 100 per cent. Many things, from newspapers to coal, have doubled in price. The Government itself has given the farmer a price for his wheat that is more than double the price that used to be thought a high one. These conditions have been particularly hard on the gas company, as you will see in a moment.

To make gas we must have oil and fuel. Those things are not produced in Chicago, but must be brought here. If you read the newspapers or have had to buy coal, you will know all about the fuel shortage and all about how the railroads have been clogged. Now see how this has hit this company.

When the reduced gas rates were agreed to early last summer, we knew our revenue would be reduced unless we could sell more gas—millions and millions of feet more—for business use—for fuel in factories and the like. We expected to do that and we started to do it, but before we got well started we had to stop. The fuel shortage and railroad jam stopped us. We found we were going to have a hard time to get enough oil and fuel to make enough gas for the ordinary demand, particularly for household use. We had to stop trying to sell gas; had to stop selling any sort of appliance that would increase the use of gas, for fear household demand might run short

If you will just think back you will realize that we have made no effort to sell a water heater or a washing machine or a space heater or any kind of a gas appliance since early last fall. We had to do that to avoid a shortage that would cut off your gas for light and for the kitchen stove.

All through the fall and winter and up to now, when many had no coal—perhaps you among them—you had gas. When those cold waves came, one after another, thousands and thousands of families—perhaps yours—lighted the gas stove or the oven or turned on the gas grate or a space heater, to keep warm. We furnished you the gas to do it with, but at enormous expense to us, and here is the reason why:

We foresaw the fuel shortage and railroad jam. Early in the year we found we could not depend upon our large contracts for fuel. Contracts had no force in war-time. We had to go into the open market and bid for fuel. Coke is the best fuel for making gas under our present system, but it was almost impossible to get coke at any price. We had to take hard coal, which always costs more than coke and yields less gas per ton, and we had to take it at any price. We had to send men into the mine fields to pick up odd lots, regardless of the price, and then to follow the shipments through. Some of our coal was commandeered for the navy, so we had to station an officer of the company at Washington, in daily contact with the Fuel Administrator, to get what we had bought and to see that it came through on the railroads.

The net result of all this was that our manufacturing cost for oil, fuel and labor was $3,510,972.33 more in 1917 than it was in 1916.

Throughout the year we practised every economy that was possible. Reduction of the candle-power of the gas permitted us to recover certain by-products which the Government has to have for making war munitions. We derived some revenue from that. But—in spite of economies—our total operating expenses increased more than 32 per cent in 1917; and in spite of by-product revenue, our total expenses exceeded our receipts by nearly $500,000. In other words, we kept our plants running and KEPT CHICAGO SUPPLIED WITH GAS UNDER UNPRECEDENTED CONDITIONS AT A NET LOSS OF NEARLY HALF A MILLION DOLLARS.

The evidence of all this, in detail month by month, is in our books and the authorities have been invited to examine it.

The plain fact is that no business can live under the conditions now upon us, and all we ask of the authorities is an adjustment of rates that will permit us to live. Elsewhere these war conditions have been recognized. Out of 462 applications for increased utility rates throughout the country, 401, or more than 86 per cent, have been granted.

We believe the public and the authorities here are also fair minded enough to recognize that our petition is just.

The Peoples Gas Light & Coke Co.

Avoid Price and Make Sales

It is almost impossible for some salesmen to close an order on the first call when making a canvass. Anyone can get a signature when a customer writes or phones in for a gas appliance. This is not selling, nor is it salesmanship to walk away and let your prospect think it over or talk it over with husband or wife, as the case may be. Nine times out of ten—yes, ninety-nine times out of a hundred—such a person is not interested, and the sooner the salesman finds it out the better. The chances are the individual who wants to think it over has been called on before—not once, but several times—and has had ample time to talk it over. As a rule, the hardest person to sell is the person who knows all about the article the salesman is presenting. Oh, yes! she knows all about water heaters and has always wanted one. How much did you say they cost? Answer this question at once and you lose the sale. The proper thing to do in a case of this kind is to tell all about the heater as though you had not heard the question. Keep doing this even if the price is asked three or four times, until you have told the person you are canvassing all about the heater. Then state your terms. Had this party known all about the water heater she would know the price as well. If you are really the first one who has brought this appliance to the attention of the customer, then it is up to you to make it so interesting and necessary to him or her that you will get the order. There is only one reason for people not giving an order, and that reason is they do not want it.

Another great mistake a salesman makes is to try and sell the highest price gas range from the start. The main thing is to sell a range or water heater. The company wants gas consumption (notwithstanding opinions to the contrary). After you have your party interested to the extent of buying a range you can "raise the ante," when, if you had started on a fifty-dollar range, you are apt to get nothing. Now, it makes no difference what you are selling, "don't let them get away." When a woman really wants something she will not consult with anyone. It is only when she is not sure whether she wants it or not, or when she does not care much either way, that she will ask.

A salesman should look for new material. Any good salesman who does not wish to waste time on callbacks can narrow a dozen prospects down to two. But, above all, "get them on the jump."—*Energy*.

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CONTENTS

SUPPLYING GAS FOR HATCHING AND BROODING IN THE AGGREGATE A SUMMER LOAD MARKET THAT IS WELL WORTH WHILE. BY GILBERT C. SHADWELL 289
GAS LIGHTING OF STREETS AND HIGHWAYS IN FRANCE. BY FRANCIS MILTOUN 291
HOW ONE COMPANY SIZES ITS BY-PRODUCT COKE FOR DOMESTIC CONSUMERS 292
MERCHANDISING GAS 297
SITUATION FOR MERCHANDISING THE GAS-FIRED WASHING MACHINES AS IT EXISTS TO-DAY COULDN'T BE BETTER IF IT WAS MADE TO ORDER 297
CONSUMERS TELL OF ADVANTAGES OF INDUSTRIAL FUEL GAS 297
EDITORIALS 300
PUBLICATIONS 302
Safety for the Household
Powdered Coal as a Fuel
AFTERMATHS OF THE ILLINOIS CONVENTION 303
HOW THE GAS COMPANIES ARE HELPING THE NATION 304
NEWS OF THE GAS INDUSTRY 305
ANNUAL CONVENTION OF WISCONSIN GAS ASSOCIATION 305
PERSONAL NOTES 312
SOCIETIES AND ASSOCIATIONS 312
CONSTRUCTION NOTES—PAGE 15 OF THE ADVERTISING SECTION

Why Gas Lighting Lags

There is a great deal of truth in the statement of J. G. Learned, of the Public Service Company of Northern Illinois, in discussing Charles A. Luther's paper at the Illinois Gas Association convention, that the reason why gas lighting has fallen behind "can be found in the advertising columns of almost any periodical." The responsibility is entirely up to the manufacturers of gas lighting equipment.

The fault lies in the distrust of the value of periodical advertising that is a characteristic of all of the manufacturers of gas lighting equipment, and their tendency to stand apart from each other and to exploit their own individual product rather than gas lighting. This attitude has prevented them from uniting to give national publicity to gas as a lighting agency, and to send people into the gas company offices to seek gas lighting equipment, instead of having to be beguiled there by the gas company's representative, as is now the case.

If the manufacturers of gas lighting equipment as a body would expend half as much effort in giving national publicity to gas lighting as they do in verbally berating the gas man for his indifferent attitude towards this branch of the business, there would be less heard of the falling off in our lighting loads, and infinitely more gas lighting sold.

What person who reads the current periodicals can fail to picture a glittering Mazda bulb when the very name is mentioned? Why? Because this particular portrayal of the bulb, occupying the greater part of a very costly page, has been held before our eyes time after time until its very image is so prominently implanted in that portion of our brain that registers visual perceptions that we simply cannot forget it or ignore it, whether we will or no. Now think! Have you ever seen a similar page devoted to gas lighting? Maybe you have. But the occurrence has been so infrequent that it has made no impression upon you.

Yet, what could be advertised popularly more effectively than gas lighting? For one thing, as a lighting agency it fills a need that is felt by almost everyone.

What part of his anatomy does the average, normal resident in this country give the most thought to? His eyes. Let him be afflicted with a headache of several days' duration. Its cause may be bad stomach or any number of things. But what does he think of first? His eyes. Headaches have sent more people to the eye specialist than any other factor.

Play up the eyes first in national advertising of gas lighting. Its effectiveness is assured and the results will be felt almost instantly. Even with copy prepared by a mediocre writer, gas lamps could be placed in an infinite number of private libraries in a comparatively short time.

The retailer of Regal shoes, of Mazda lamps, of Neolin Soles, of Quaker Oats, etc., has a demand created for him. People come to him asking for this or that particular product. The gas man has to create his own demand for gas lighting. People are not brought to him. He has to go after them.

The gas man in the lighting end has been fighting an uphill battle. Small wonder it is that he has to a considerable extent become indifferent to that branch of the business. Small wonder it is that he went out "licked" before he started. He too frequently was.

The power of intelligent national publicity is beyond estimate. Hitherto it has all been directed against gas lighting rather than in favor of it. The fact that the gas man has been able to hold on as he has in this end, under the circumstances, is the highest tribute to his ability, and the real merit of the product he has been selling that could be desired.

The gas man is indebted deeply to the manufacturer of gas lighting equipment for the numerous services he has afforded him. He has benefited to a very large degree by the data and inspiration the manufacturer's representatives, who have spoken at his conventions, have furnished him. He has felt duly chastened by the verbal beratings his failure to do as well as they consider he should have done have brought down upon him.

But in the final analysis he has done more than his share. By extra effort he has sought to fill in the gap the manufacturer's omission has left open. They have told the gas man that he must "get together" and push gas lighting, when, in fact, he was already pushing it to a greater degree than is his share. It should have been the gas man telling the manufacturer to "get together," to readjust his viewpoint in the matter of publicity, and to give him half a chance to sell his product.

The Next Loan

Information has been published that the Third Liberty Loan will be to the amount of three billion dollars—all over-subscriptions will be accepted—with interest at 4¼ per cent. The expectation had been that the amount asked would be much larger than this, and the country had generally set itself to meet such a call. The issue should therefore be greatly over-subscribed.

But none of us should permit ourselves to let our sense of personal responsibility relax. Regardless of the size of the issue and the actions of others, we should obligate ourselves for just as large a subscription as we can possibly carry. We should do more. We should use our whole influence in our respective communities to induce others to increase their subscriptions to the limit.

A Market for Domestic Coke

The contribution of Alan H. Harris, Jr., to the proceedings of the recent annual convention of the Illinois Gas Association, which is printed elsewhere in this issue, should be studied carefully by gas men.

The trend is away from burning natural fuels direct. The wastefulness of the practice has been brought strikingly home by contemporary events. The country in the future will lean to a greater and greater extent upon the gas companies and the by-product coke ovens in regard to its fuel. It will insist upon the elimination of wastefulness in the consumption of its natural resources, and it will look to them as the most available means of attaining this end.

They will become more and more the custodians of the Nation's coal. If they are found wanting, the trust will be taken away from them and discharged by the people themselves.

What they do with the coal they receive, whether or not they recover the last ounce of value from it in the way of products and by-products, will become more than a concern of the companies themselves. It will become a vital concern of the whole people of the country.

Eventually the communities they serve will look to the gas companies to supply all their fuel needs. It may be that on the basis of their ability to accomplish this the question of whether the gas companies of a hundred years from now will be privately or government-owned.

Squabbling Over the Ideal Before We Attain It

We are at an association convention. A visionary arises.

"Every task in which heat is involved is a prospect for industrial fuel gas," he declares.

The average gas man immediately begins to approximate how much gas it would take to supply all these prospects.

"Too much!" he objects. "Why, we would have to increase our capacities ten thousand per cent."

Then we begin to argue about the value of this kind of business. We see only the end attained and what it will involve. We do not stop to reflect that, though all these industries are logical prospects for gas, though they will profit materially by using it, it will be many years before we can possibly convince them of the fact, and get even as much as 10 per cent of the business on our lines. In the meantime we will have built up our plants gradually to meet it. It will not represent revolution, but evolution.

It is well for us to set for ourselves a high ideal—

a definite goal to aim at. But we should not—as is our tendency—argue as to the advisability of going after this or that class of business on the basis that we are immediately going to obtain it. If we set ourselves out to get all the house-heating business in our territory, for instance, we can be quite sure, even in these propitious times, we will be fortunate indeed if we get even one-fifth of it during the next decade.

The Growing Confidence of the Public in Its Ability to Handle Big Affairs

The AMERICAN GAS ENGINEERING JOURNAL cannot but deplore the light-minded manner in which the municipal ownership agitations that are springing up throughout the country are viewed by the gas man in general. It is true that the privately owned gas companies have been given by contemporary conditions an opportunity without parallel to reveal in their best light their soundness and the high value of their service to their communities, and that many have profited by the opportunity.

Nevertheless the danger of municipal ownership is greater to-day throughout the country than it has ever been before, and—if the storm is successfully weathered—it ever will be again in very many years. The reason is simple.

The people of the country are seeing apparent impossibilities overcome under governmental direction almost every month that passes. They are acquiring a supreme confidence in the ability of the community to handle big affairs.

They see ship-building being carried on at a rate never attained hitherto—under governmental direction. They do not see the other side of the shield: That this is war, and speed predominates every other factor. Cost is nothing. Before economy came first. Speed in construction was desirable, but not to the extent of spending two dollars on a task that one would do.

They saw the railroads under private direction wobbling about almost impotently under the stress of unprecedented conditions. Then came Government direction, and the change was almost miraculous. This the public saw, but it did not see the whyfore. The railroads had to compete or their directors go to jail. The Government eliminated the competition and the big difficulty was overcome. The private owners knew where the trouble was, but the law prevented them from remedying it.

These and similar occurrences are building up the public's confidence. It was never a reasoning body, and it is not now. The developments we have cited do not provide a proof of the public's ability to manage big enterprises, but they do provide all the proof the public needs. And it doesn't matter, should it decide to take over the gas and electric light plants, whether it acts upon reason or upon impulse. The result will be the same.

It is not the Hearsts, the Thompsons, the Quinns and the Hylans the public utilities have to fear in the matter of municipal ownership. They are but the parasites who would profit by a transiently popular sentiment. It is the public's growing confidence in its superlative ability to handle its big enterprises.

The only manner in which the utilities can surely prevent this belief from becoming a menace is by rendering superlatively efficient service, to prevent the public, through leaving nothing wanting, from turning its thoughts upon them. The wild bull is not a menace to the red-sweatered black man crossing a field if it does not notice him. We do not think of the shoes on our feet, whether they are good or bad, if they do not pinch or otherwise attract our thoughts.

Failure to maintain pressures, a cessation of merchandising, poor service, illy adjusted appliances, however justifiable, all contribute to attracting the notice of the public as a mass to its utilities. Good excuses may avert penalties, but will not divert the inclination of the public to take matters into its own hands.

It isn't a pleasant situation. It isn't even just. But it exists. The public utilities are going through very precarious times. Their backs are against the wall. If they are to exist they must strain themselves to the limit. They know what good service is. They must furnish it regardless of difficulties.

Publications

Safety for the Household

Flexible-board covered volume; 7x10 in.; 127 pages, illustrated. Published by the U. S. Bureau of Standards, S. W. Stratton, director, Washington, D. C. Obtainable from the Superintendent of Documents, Washington, D. C.

A very excellent work that can be made to serve a most useful purpose. The various dangers that exist in the home are clearly set forth, and simple, easily-followed rules for avoiding them are given.

Particular pointedness is given to what follows by the excellent selection of the sentence: "Few know, for example, that to turn on an electric lamp while one hand is on a water faucet may result in instant death from electric shock."

We are one of those who didn't, and we, despite the fact that all our labors pertain to the gas industry, sometimes have occasion to turn on an electric lamp. If we haven't subjected ourselves to instant annihilation by committing this indiscretion in the past it has been through accident rather than because we knew better.

Ordinarily, in reviewing this work, we would have

immediately turned to the section devoted to gas and left the rest unread. But that sentence caught us. We wondered instantly what other daily deadly perils we were daily flirting with in the privacy of our own home where we had hitherto been inclined to believe we were removed from all dangers. We read to find out.

The man who prepared the introduction to this volume and placed that sentence as he did is an artist—nothing less.

In the chapter on gas it is stated: "Practically all accidents with it are readily preventable by the observance of simple precautions. In fact, the householder should realize that gas when carefully and properly used is perfectly safe and that the user is almost invariably responsible for any fire or accident which may occur."

This is in line with what the AMERICAN GAS ENGINEERING JOURNAL has preached consistently. The local newspaper which stresses particularly on gas asphyxiations is the best friend the gas company has. The asphyxiations for which the gas company is at all responsible are so rare that a case comes to our attention but once in years. Education that will *reach* is the one way of eliminating them, and the most effective way of enlightening John Jones as to the dangers that lie in blowing out the gas instead of turning it off is to hold up before his eyes what happened to Thomas Smith when he similarly violated the laws of common sense. The instinct of self-preservation is quite strong in John Jones, as it is in most of us, and having gotten these notices in regard to Mr. Smith he is not going to blow out any gas lights in the future, nor is he going to trust altogether to a relatively ignorant domestic to make sure that all the cocks in the cooking range are completely closed.

If every gas company could get all its gas users to really read what the Bureau of Standards says about the use of gas, it wouldn't require tragedies to educate them—a desideratum at all times.

Every gas man should secure a copy of this work. Doubtless the majority are already familiar with all the household dangers pertaining to gas it points out. They cannot but benefit, however, by checking up their own lists with those the Bureau sets down. And some means should be devised for getting the information it affords into the hands of their customers.

The text is well written and adapted to the non-technical mind. It should be interesting reading to anyone.

Powdered Coal as a Fuel

Cloth-bound volume, 9 x 6 in.; 211 pages; illustrated. Author, C. F. Herington. Published by D. Van Nostrand Company, 25 Park Place, New York City. Price, $3 net.

Powdered coal is not often cited as one of the competitors the industrial gas man must cope with as a fuel. Yet it would be well for him to keep in touch with the progress that is being made with it, for, in the opinion of the reviewer, that is where the competition of the future is apt to lie.

Fuel oil will fade, possibly, is even now fading as a fuel of the industries. Bulk coal or coke could be toppled over to-day sufficiently to tax the capacities of our present plants and a big percentage in addition besides, were we pushing industrial gas to the extent we should. But powdered coal threatens. It may never do more than that, but it will, if we do not keep a close eye on it and keep ahead.

This work deals with the general situation at the present time, coals suitable for powdering, preparation of powdered coal, feeding and burning, powdered coal in the cement industry, applications of powdered coal, its use in metallurgical furnaces and under boilers, for locomotives and the matter of explosions.

Aftermaths of the Illinois Convention

Why Gas Lighting Has Fallen Behind—Ways to Kill an Association

Discussing Charles A. Luther's paper on "Do You Believe in Gas Lighting?" at the recent annual convention, J. G. Learned, of the Public Service Company of Northern Illinois said:

"I must say that Mr. Luther is thoroughly sold on gas lighting, and I feel the association is indebted to him for his clever paper. Eight hundred thousand dollars' worth of new business in one year is surely worth going after.

"There is no denying the fact that electric companies and combination companies have done much to discourage gas for lighting, perhaps rightfully so, from their point of view. The electric industry as a whole has, through intensified co-operation, done wonders for popularizing electricity. The very atmosphere is filled with electricity. What is the reason? You can find the answer in the advertising columns of almost any periodical. They are filled with electric advertising. How many gas advertisements have you seen?

"The gas man must get into the fight before it is too late. The gas and electric interests have much in common, and I believe they should co-operate, for example, in preventing the publication of such information as comparative figures on the causes of fires."

Mr. Luther closed the discussion with a reply to Mr. Learned's statement that the gas man had been left "flat-footed" in the race with the electric man.

"If the gas man has been left flat-footed, it is his own fault. Gas for lighting should be pushed by every man working for a gas company, no matter what department he is in. The popularity of electricity is due largely to its newness. But it is also due in a very large measure to the fact that every man employed in any branch of the electric industries goes about talking nothing but electricity.

"It is up to the managers of gas companies to educate their employees to boost gas under all circumstances. If every gas man when he rented a flat or built a home specified to the owner or architect that he wanted gas, the architects of the country would eventually learn there is such a thing as gas on the market."

The very last paper read at the convention, that of A. H. Harris, Jr., of the Coal Products Manufacturing Company, of Aurora, Ill., on "Domestic Coke for By-product Ovens," developed the most thorough and most important discussion of the entire day.

Not until after the banquet, the election of officers and all the other business of the convention did Mr. Harris take the speaker's stand. He had been un-

usually busy recently on the construction of a coke oven, which, perhaps, is the last word in that line. It was on work relating to these ovens that he described.

His paper was followed by an expansive symposium of experiences in coking Illinois or mixtures of Illinois and Eastern or Illinois and Kentucky coals. Practically every producer present contributed to the discussion until the common pot of knowledge overflowed.

The chairman of the nominating committee, in announcing the committee's recommendations for officers for the ensuing year, said: "For secretary, the usual H. H. Clark," but Secretary Clark, in his speech of acceptance, departed from the usual, "Gentlemen, I thank you," etc. Instead he recited "Ten Ways to Kill an Association," as follows:

1. Don't come to the meetings.
2. But if you do come, come late.
3. If the weather doesn't suit you, don't think of coming.
4. If you do attend a meeting, find fault with the work of the officers and other members.
5. Never accept an office, as it is easier to criticize than to do things.
6. Nevertheless, get sore if you are not appointed on a commiittee, but if you are, do not attend the committee meetings.
7. If asked by the chairman to give your opinion regarding some important matter, tell him you have nothing to say. After the meeting tell every one how things ought to be done.
8. Do nothing more than is absolutely necessary, but when other members roll up their sleeves and willingly, unselfishly use their ability to help matters along, howl that the association is run by a clique.
9. Hold back your dues as long as possible, or don't pay at all.
10. Don't bother about getting new members. "Let George do it!"

What Your Bond Purchase Will Accomplish

The following figures give one a definite idea of what his or her loan to the Government by the purchase of Liberty Bonds will accomplish when used by the War Department:

One $50 bond will buy trench knives for a rifle company, or 23 hand grenades, or 14 rifle grenades, or 37 cases of surgical instruments for enlisted men's belts, or 10 cases of surgical instruments for officers' belts.

A $100 bond will clothe a soldier, or feed a soldier for eight months, or purchase 5 rifles or 30 rifle grenades, or 43 hand grenades, or 25 lb. of ether, or 145 hot-water bags, or 2,000 surgical needles.

A $100 and a $50 bond will clothe and equip an infantry soldier for service overseas, or feed a soldier for a year.

Two $100 bonds will purchase a horse or mule for cavalry, artillery, or other service.

Three $100 bonds will clothe a soldier and feed him for one year in France, or buy a motorcycle for a machine-gun company.

Four $100 bonds will buy an X-ray outfit.

One $500 bond will supply bicycles for the headquarters company of an infantry regiment.

How the Gas Companies Are Helping the Nation

E. N. Gardner, formerly employed by the Atlanta Gas Light Company, Atlanta, Ga., entered the regular army April 10, 1917, and is now stationed at Fort Thomas, Ky.

Three Gold Stars in Baltimore Flag

The third gold star was recently placed in the service flag which the Consolidated Gas, Electric Light & Power Company, of Baltimore, Md., flies, indicating the third death in the fighting forces of the United States of former employees of the company. The latest star represents James E. Potts, the member of the 117th Trench Mortar Battery, whose death was reported recently.

Potts was the fourth former employee of the company to die while fighting the Hun or training to fight him. One of the four was Arthur H. Eden, who was born in Jamaica and who was a British subject. He went into the Royal Flying Corps and was killed in a collision in the air in a Texas Training camp on Dec. 31 last.

The two Americans, in addition to J. E. Potts, who have given their lives for their country were:

George H. Manley, who was killed in an aeroplane accident in France last August.

Ensign T. H. Webster, who died of meningitis aboard a United States war vessel in foreign waters. His death occurred in January.

There is a total of 327 stars in the company's flag, representing that number of men scattered in all the various branches of the fighting forces of the country.

The Brooklyn Union Gas Company, of Brooklyn, N. Y., has placed its kitchen and auditorium at the service of Miss Mollie Gold, demonstrator in Brooklyn, representing the State Food Commission, and is sending notices to 23,000 housekeepers in Brooklyn of the demonstrations which will be given twice weekly, beginning April 1, at the gas company's kitchens, at No 180 Remsen Street, and at Myrtle Avenue and Himrod Street. The food conservation demonstrations will take in meat saving and wheat saving dishes.

The Illinois Gas Association, at its recent annual convention, reported that the following members were serving in the Army or Navy:

B. O'Brien
D. H. Brush
S. K. Chase
H. W. Edmund
A. C. Goodnow
L. H. Johnson
E. E. Lungren
A. E. English
W. J. MacPherson
R. S. Miller
J. M. Morehead
C. F. Morse, Jr.
R. B. Richardson
H. L. Rice
G. Q. Sherrington
R. N. Strohm
C. W. Williamson

R. S. Freeman, who was formerly employed by the Atlanta Gas Light Company, Atlanta, Ga., as a helper, entered the Red Cross Ambulance Corps June 21, 1917. He is now stationed at Camp Gordon, Atlanta.

C. E. Sprouse, formerly employed by the Atlanta Gas Light Company, Atlanta, Ga., entered the Regular Army July 15, 1917, and is now stationed at Fort Oglethorpe, Ga.

NEWS OF THE GAS INDUSTRY

Wisconsin Gas Association Holds Successful Meeting

John St. John the New President—Remission of Dues to Members in Service — Gas Fellowship a Success and to be Continued

The seventeenth annual convention of the Wisconsin Gas Association opened March 26 at the Hotel Milwaukee, with representatives of practically every gas company in the State in attendance. The new officers for the ensuing year are: President, John St. John, secretary and treasurer, Madison Gas & Electric Company; vice-president, H. W. Johonott, of Monroe, Wis.; secretary and treasurer, Henry Harman, Milwaukee.

With an attendance of 110 members, a membership of 182, and a representative delegation of gas men from Illinois and numerous well-known appliance and machinery salesmen present, the meeting was a decided success.

The following were elected to membership: M. A. Corbett, Columbia Steel Products Company; W. L. Powers, industrial gas engineer; G. H. Cook, Wisconsin Gas & Electric Company; J. G. Hart, Northshore Gas Company; George Gorgan, Sheboygan Gas Light Company; F. E. Anderson, Humphrey Company; A. G. Rutz, Gas Specialty Company; B. F. Ehrman, Russel Engineering Company; J.C. Holderness, Eclipse Gas Stove Company; Geo. J. Leibold, Welsbach Company; Harvey M. Kilpatrick, Manitowoc Gas Company; G. K. Johnson, Lynchburg Foundry Company; J. N. Carby, consulting engineer; Geo. E. Wagner, Madison Gas & Electric Company; G. W. Briggs, Wisconsin Light & Power Company; Thos. J. Lucas; Wm. A. Baehr, consulting engineer; P. S. Dickey, Beloit Water Gas & Electric Company; E. L. Moorman, Beloit Water Gas & Electric Company.

Retiring President Wisconsin Gas Association

B. F. LYONS

Resolutions in memory of Allen P. Knight and C. H. Conner, who died during the past year, were adopted.

Remission of Dues

On recommendation of President B. F. Lyons, the association adopted a roll of honor of members in the national service, ordering a remission of dues to such.

The Tuesday morning session was called to order by President B. F. Lyons. The reports of the secretary and treasurer, Henry Harman, revealing a satisfactory financial standing of the association, was adopted.

The president's address rang true with loyalty to our country and patriotism in these times of the nation's trial. Attention was called to the numerous disturbing elements, such as labor scarcity, high cost of labor and materials, unparalleled in the history of the industry, with which gas managers had to cope. The president dwelt upon the effects of the extraordinarily stimulated national activity upon the gas industry, which meant a marshalling of every ounce of energy and every available force to satisfy demands made upon the gas industry. Praise was bestowed upon the prompt co-operation and banding together of national gas associations with other related bodies for the purpose of facing and solving problems of financial difficulties and of bringing to the attention of the Government as well as the public such hardships and difficulties due to the present strained and abnormal situation. President Wilson's letter to Secretary of the Treasury McAdoo was commended as being the first public recognition of public utilities and their value to the community. It was pointed out how public utilities and securities have suffered under the present national stress, and that the public must be kept informed of such conditions with a view of equitable rates prevailing. President Lyons expressed gratification at the numerous rate increases which have been granted to various companies during the past year in recognition of our present difficulties. President Lyons ended his able address with an emphatic appeal for unswerving loyalty and support towards our national Government in the energetic prosecution

of the war. Prof. Otto L. Kowalke, of the University of Wisconsin, made a satisfactory and encouraging report regarding the activities of Howard E. Sweet, the present incumbent of the $500 gas fellowship granted to the university by the association.

A comprehensive inquiry was made into the advisability of lowering B.t.u. standards in Wisconsin, and a report of this was submitted to the State rate commissioner for consideration.

Investigation of Gas Furnaces

Further work was done in investigating gas furnaces with respect to the effects of varying gas and air pressures upon attainable temperatures. A study of refractories for gas furnaces and an inquiry into the heat treatment of steel with microphotographs of cross-sections of heat-treated samples. Furthermore, experiments were being conducted with a view of developing surface combustion and its practical application for industrial gas purposes. Professor Kowalke pointed out that all material so gathered had been put into suitable shape, so that it was available for interested members. In the discussion ensuing, Mr. Butterworth, together with other leading members, expressed their hearty appreciation of the value of the work of the "gas fellow," and of the benefits accruing to the gas industry of the State in having available each year a competent young man who has specialized for one year in gas engineering. It was decided to continue the $500 granted yearly for this purpose, and upon motion by Mr. Brown, of Milwaukee, it was decided to raise the greater part of this sum by increasing the annual dues from $3 to $5 per member.

Gas Lighting

The afternoon session opened with the reading of a paper on surface combustion, by J. N. Cadby, ably illustrated with numerous lantern slides illustrating surface combustion furnace installations made in various localities. In the animated discussion which ensued, Messrs. F. F. Cauley and John Zander, of Chicago, complimented the Surface Combustion Company upon their work done in Chicago. B. Rahn, of Milwaukee, brought out the possibility of procuring certain classes of industrial gas business, such as galvanizing installations and large annealing furnaces, with this method, which were difficult to land with ordinary burner applications. Professor Kowalke contributed an interesting discussion of the effects of radiant heating as contrasted to heating by convection.

Horace Clark, of Chicago, asked regarding comparative efficiencies as to operating costs of surface combustion installations, compared with similar installations made along customary lines. J. N. Cadby closed the discussion, stating among other things that in its application to coffee roasting with dollar gas a cost of 7 cents per 100 lb. of coffee roasted had been attained through the application of surface combustion.

"Some Aspects of Factory Lighting," a paper read by Robert French Pierce, brought out the most animated discussion of the entire session. Mr. Pierce handled his subject in a most complete manner, leaving no doubt in the minds of those present as to the great commercial value to the industry of this branch of the business. In his characteristic and energetic style, Chas. A. Luther, of Chicago, opened the discussion. He stated in part that enthusiasm coupled with a thorough engineering and commercial knowledge of this subject was bound to obtain results, and substantiated his point by citing figures of results obtained in Chicago in factory lighting during the year 1917. He laid stress on systematic maintenance of installations. He wants the "Billy Sunday type" of salesman who has the necessary subject knowledge to push this business. He warned against the evils of skepticism, and told that 32,000 arc lamps had been put in use in Chicago during 1917, resulting in an increased consumption of 805,000,000 cu. ft.

C. A. Luther was greatly in favor of trial installations. He successfully refuted the arguments of "gas being behind the times," and the contention that insurance rates are increased through the use of gas lighting.

R. B. Brown, of Milwaukee, emphatically believes in gas lighting. He said he believed in the employment in the future of more scientifically trained illuminating engineers for obtaining factory lighting business. He urged manufacturers to spare no efforts in keeping appliances up to the minute as regards workmanship, style and efficiency.

Mr. Pierce closed the discussion by stating that two and one-half as many fire risks were traceable to electricity than to gas.

The Wednesday session opened with a paper on the recovery of benzol and toluol from illuminating gas by P. E. Dodge, of the Barrett Company of New York. The speaker delivered a very comprehensive address on this timely subject, well illustrated with lantern slides of apparatus employed. He pointed out the urgent need for the recovery of every available ounce of toluol at this time to supply the demand of our Government. George C. Lowell, construction engineer of the new plant of the Peoples Gas & Coke Company, Chicago, stated that it was intended by the Government to make benzol and toluol recovery obligatory. He pointed out the different methods employed for "stripping" gas of this valuable by-product with respect to the recovery from coal and water gas. Benzol recovery plants would retain their value even after the war, due to the worth of this product as a motor fuel. H. M. Humphrys, of Milwaukee, called attention to the possibility of employing coal tar in place of light oils in this process. Mr. Dodge discouraged this practice, however, on account of the liberation of naphthalene.

Refractories

The last paper, "Some Characteristics of Fire Clay and Silica Refractories," was read by Prof. Otto Kowalke, of the University of Wisconsin. This paper was illustrated with lantern slides showing micro-photographs of the structure of refractories of varying compositions as affected by high heats. Many interesting, scientific facts were presented in this paper.

The meeting adjourned to take part in joint session with the Wisconsin Electrical Association. Wednesday evening the public utility men and their wives made merry at a "war" banquet.

To Prohibit Mixture of Air with Gas

A bill was introduced by Senator Eppler at Annapolis, Md., recently prohibiting the mixture of air with heating or illuminating gas in Allegany County. It was referred to the committee on judicial proceedings.

Rate Increase Granted at Washington

The utilities commission recently decided that the Washington (D. C.) Gas Light Company is entitled to collect 90 cents per 1,000 cu. ft. from consumers, owing to extraordinary expenditures entailed by the war. The new rate was put into effect March 20. The rate formerly charged was 75 cents per 1,000 ft.

Gas Inspectors at Work in Wooster

Three inspectors of the East Ohio Gas Company are at work in Wooster, Ohio, visiting every home where gas is sold.

An inspection of this kind is made every four or five years, and takes the form of an inventory.

Leaks are encountered frequently, and measures taken to have them eliminated, both as a matter of safety and waste.

Mistakes are occasionally found and straightened up.

The inspectors working in Wooster have found the company's property in good shape.

Savannah Company May Employ Women as Meter Readers

For lack of men, the Savannah Gas Company is facing the likelihood of having to put on women as meter readers, according to the statement of John W. Golden, vice-president of the company. He is trying, through newspaper advertising and other channels, to secure a number of men meter readers. So far results have been meager, he states, and he is strictly up against the proposition of having to do something soon.

Already the company has replaced to a large extent men with women, most of the men having joined the colors. In the city offices, where the corps has been nearly all men heretofore, there is only one man now. All the rest of the assistants and the clerks are women.

On account of the lack of men Mr. Golden states that a number of places in other sections of the country have trained and installed corps of women meter readers.

Expert Fees for Chicago in 1917 Are $736,329.26

The bill of the city of Chicago for experts during 1917 amounted to $736,329.26, a good part of which was expended in connection with the gas investigations.

Gas Fixtures Company of Bridgeport Organizes

A certificate of organization of the Bridgeport Gas Fixtures Company, of Bridgeport, Conn., was recorded recently at the office of the Secretary of the State. Capital stock is $10,000, divided into 100 shares. The subscribers are Robert T. Rock, Alice K. Rock and Thomas J. Condon, of Bridgeport.

New Bond Issue of Louisville Company on Market

The Louisville Gas & Electric Company, a subsidiary of the Standard Gas & Electric Company, recently issued $16,000,000 secured 7 per cent gold notes, due Sept. 1, 1920, which are being offered by H. M. Byllesby & Company at 97¼ and interest, yielding 8 per cent on the investment.

The company operates in the city of Louisville, Ky., serving a population estimated to be in excess of 300,000.

Notes are direct obligation of the company, and are secured by deposit of general mortgage 6 per cent bonds in a principal amount of 133 1/3 per cent of the par value of this issue of notes outstanding. Additional notes may only be issued under certain restrictions.

Cambria Plant Closes

Despite the fact that the Wisconsin Railroad Commission recently granted the Cambria Gas Company permission to increase rates, the plant, which furnishes gas for Cambria, Wis., has been forced to close. The concern manufactured gas from gasoline. High prices of gasoline is the cause.

Rates Raised at Addison, N. Y.

In ruling upon the features of the complaint against the increase in gas rates at Addison, N. Y., which is based upon the objection that the increase proposed violates the franchise granted the Addison Gas Company by the village, the public service commission has cited the case of the New York & North Shore Traction Company vs. the Public Service Commission as a precedent. The public service commission has announced that the Addison Gas & Power Company can increase its rates from 40 to 48 cents per 1,000 ft., which is but 2 cents less than that asked by the company.

It is explained that the public service commission of the First District of New York holds that when a company finds that it cannot operate upon the rates fixed in a franchise, a proper form of redress is to seek an amendment to the franchise.

With the new rate in effect, the Addison company will be yielded a return of 8.6 per cent on the value of the property, and this amount is not considered inordinate. According to the decision of the commission the new rate began March 1, 1918, and will be continued until March 1, 1921, unless the commission shall fix a different rate.

New Rate Schedule Effective April 1 at Bloomsburg, Pa.

Announcement has been made by the Columbia & Montour Electric Company of the filing of a new schedule of rates with the public service commission, the rates to be effective April 1.

Under the proposed new schedule an increase is made in gas rates, both for domestic use and for industrial service.

For light and domestic fuel service it is proposed to charge $1.40 per 1,000 cu. ft., no matter how much is used. Under the schedule now prevailing, the first 500 cu. ft. cost at the rate of $1.35 per 1,000 cu. ft., the second 500 at the rate of $1.30, the next 1,000 cu. ft. at the rate of $1.15, the next 1,000 at the rate of $1.10, the next 2,000 at the rate of $1.05, the next 5,000 at the rate of $1, and for excess over 10,000 90 cents per thousand cubic feet. The rate is to be net, with 10 cents more per thousand added on bills not paid within that time. Instead of a minimum gas charge of 50 cents, the new minimum will be 75 cents.

The schedule on gas industrial service shows an increase of 10 cents on the first 1,000 cu. ft., with the increases higher as the consumption is increased. Under the new sched-

ule the rates will be as follows: First 1,000 cu. ft., $1.40; next 1,000 cu. ft., $1.35; next 3,000 cu. ft., $1.30; next 5,000 cu. ft., $1.25; next 10,000 cu. ft., $1.15; next 30,000 cu. ft., $1.10; next 50,000 cu. ft., $1; next 100,000 cu. ft., 85 cents; for excess over 200,000 cu. ft., 80 cents.

The company assigns increased cost of production as necessitating the increases.

Sea Shore Company Granted Increase

Authority was given recently by the State board of public utility commissioners to the Seashore Gas Company, of Sea Isle City, N. J., to increase its rates.

This company asked to increase its rate to domestic consumers from $1.50 a thousand cubic feet to $3.50, and the rate granted is $2.10 a thousand, subject to a discount of 10 per cent if bills are paid within ten days. The monthly minimum gas rate to all consumers is fixed at $1.50. New rates for street lighting are fixed so as to produce a revenue of $2,248 a year from fifty-four street lamps.

The Seashore company served notice last October that it would discontinue business on and after Oct. 15. The utility commission gave a hearing on that notice and required the company to continue service, which it did until Feb. 15, when it shut off the service and Feb. 19 applied for a receiver. Judgment in the receivership proceeding was suspended until the decision of the utility commission on the application for increased rates to enable the company to continue business in order that Sea Isle City might not be deprived of service.

New Natural Gas Rates in Effect at Several West Virginia Cities

Increases allowed by the public service commission following hearing of the application of the United Fuel Gas Company to increase its rates on gas are now in effect. The increase of 1 cent per 1,000 cu. ft., allowed recently, will follow the next reading of the meters. The present rate to domestic consumers is 17 cents per 1,000 cu. ft.

Huntington will be charged the same for gas to domestic consumers as Charleston. Industrial consumers of Charleston and Huntington will pay 18 cents per thousand cubic feet for the first 150,000 cu. ft. used. Coalburgh and Barboursville are classed with the two larger cities.

Permission to increase rates in Kenova, Poca and Ona were refused by the commission.

Users of gas in excess of 300,000 cu. ft. will not be asked to pay more than the price prevailing, 11 cents per 1,000 cu. ft.

The permission was granted by the commission after a careful examination of the books of the company by its chief statistician.

An exception was made as to the time the order would be effective as the industrial consumers will not be taxed the increase until after the March reading of the meters.

Increase Petition Referred Back to Company with Suggestion That They Adopt Own Methods In Wartime Prices

The city council at a recent meeting moved that the increased revenue asked by the Peoples Gas Company, Shenandoah, Iowa, be referred back to the gas company with the suggestion that they may adopt any method that seems best to them to increase their earnings from the sale of gas provided their rates shall not be in excess of the maximum price of $1.75 per 1,000 cu. ft.

By the franchise granted at the election March 10, 1914, the Peoples Gas Company is permitted to charge a sum not in excess of $1.75.

R. J. Ritchie, manager, has appeared before the city council requesting an increase in the rate in excess of the amount designated by the franchise.

Increase Granted Chicago Heights Company

The appeal of the Chicago Heights Gas Company for a temporary increase in rates has been granted by the Illinois Utilities Commission. The new rates effective Feb. 1, according to the utilities decision, are:

Initial quantity up to 3,700 cu. ft., $1.40 gross, $1.30 net per 1,000.

Secondary quantity, above 3,700 ft., $1.10 gross, $1 net.

Excess quantity—factories and other large users—80 cents gross, 70 cents net.

Minimum bills, 75 cents to $3.85.

The old rates were:

Initial quantity, $1.20 gross, $1.10 net.

Secondary quantity, 90 cents per 1,000 gross, 80 cents net.

Excess quantity, 60 cents gross, 50 cents net.

Minimum bills, 75 cents.

Lockport Company Files Supplemental Petition on Increase

The Lockport (N. Y.) Light, Heat & Power Company has filed with the Public Service Commission, Second District, supplemental and amended petition to take the place of an original petition filed on Nov. 17, in which the company asked permission to increase its rates for gas.

The amended petition is practically the same as the petition filed in November, except the 1917 figures of the company's gas department are substituted for those of 1916 in the original petition. The rates for lighting and fuel are proposed to be increased from $1.10 for 1,000 cu. ft. to a graduated charge from $1.35 to 90 cents, according to the amount used; the granting of a 10 per cent discount in place of a graduated discount rate; the institution of a minimum charge of 50 cents a month; a fixed charge of $62.50 a month as its wholesale industrial rate, plus an operating charge, instead of a graduated rate, and the allowance of a 20 per cent discount on fixed charges only.

The petition is filed under a stipulation entered into eleven years ago that the company would not increase its gas rates without the consent of the commission. No hearing was had on the original petition as the company announced that it desired to file a supplemental and amended petition. It is expected that a hearing will soon be had.

New Gas Rate at Fort Smith Temporarily Enjoined

Enforcement of the city's recently adopted 17-cent gas ordinance was temporarily enjoined by Judge Frank A. Youmans in the United States District Court recently on application of the Fort Smith Light & Traction Company, which increased the price of gas from 15 cents to 25 cents a thousand cubic feet Jan. 1.

The court will appoint a master to

hear the evidence for final hearing of the application for a permanent injunction.

The city will ask a $250,000 bond to insure reimbursement of gas users if the company's petition is not sustained. The traction company charges the city's rate will not permit a fair return on its investment.

Rate Increase Petition Filed for Several New York Cities

The Empire Gas & Electric Company filed with the Public Service Commission, Second District, a petition asking that it be permitted to increase the price for gas in Auburn, Geneva, Seneca Falls, Waterloo, Phelps, Lyons, Newark and Palmyra.

The petition asks that for lighting and fuel, except for large industrial and power users, the rate of $1.15 per thousand cubic feet be granted, plus a consumer's charge of 50 cents per meter per month, all bills to be due and payable within ten days after date of billing, and an additional charge of 10 per cent to be added if the bill is not paid within said period.

The company alleges that in 1918 the cost of operation of its gas department will be over $77,000 more than it was in 1917, based on the output of that year. The company says that if its request is granted and the proposed rates afterwards determined by the commission to be unreasonable that it will repay to consumer the difference. The rates proposed, it is alleged, will be sufficient to pay only 6 per cent on the capital invested in the gas department.

Court Restrains Commission from Making Rates at Jamestown, N. Y.

Supreme Court Justice Hasbrouck has decided that the Pennsylvania Gas Company does not come within the jurisdiction of the Public Service Commission of the Second District of New York State, in fixing the price of natural gas to consumers at Jamestown, N. Y. He therefore has granted writ of prohibition restraining further proceedings on the part of the commission.

Lancaster Rates to Go Up April 1

Ralph B. Hull, general manager of the Lancaster (Pa.) Gas Light & Fuel Company, announced that his company had filed with the public service commission a notice increasing the price of gas 10 cents per thousand cubic feet on April 1, 1918.

"The company regrets very much that the constantly increasing expenses it is forced to meet necessitates increasing gas rates, particularly in view of its policy in the past to reduce rates. Numerous reductions in rates have been made in the past, but this is the first time that the company ever increased rates," Mr. Hull said.

"The company held off as long as it could, hoping to be able to make ends meet, but increases in all materials have made the burden too great."

The present rate of gas per thousand cubic feet is $1, with a rebate of 10 cents, if paid on or before the 16th of each month.

Increase Announced at Fitchburg

Gas, now selling at $1.10 per 1,000 cu. ft., is soon to take a 10 per cent increase in price at Fitchburg, Mass., it was announced recently. The Fitchburg Gas & Electric Light Company will make formal announcement shortly.

Rates for Stevens Point, Wis., Increased

The decision of the State railway commission on the petition of the Wisconsin Valley Electric Company for the increase of gas rates at Stevens Point was received recently.

The new rates for gas, regardless of its purpose, are:

First 1,000 cu. ft. of consumption per month, $2; next 2,000 ft., $1.85; next 7,000 ft., $1.65; over 10,000 ft., $1.40.

The old net rate was $1.75 for illuminating and $1.25 per 1,000 for fuel gas, regardless of quantity.

An increase in the minimum bill of 15 cents for fuel gas and 25 cents for illuminating gas to 50 cents in either case.

Abolition of double meters and the measuring of gas for illuminating and fuel purposes through the same meter.

The new rates are to be in effect six months from March 1. After six months they will again be reviewed. The commission states that they are temporary emergency rates.

Increase Petition Filed at Arlington

A petition has been placed before the gas and electric light commissioners by the Arlington (Mass.) Gas Light Company for permission to increase the maximum price of gas per thousand cubic feet from $1.10 to $1.25. The company supplies Lexington and Arlington.

New Rate Schedule for Providence

The Providence (R. I.) Gas Company has put into effect a new rate for its commodity in the Providence and Riverside districts. A revised rate schedule was approved by the public utilities commission recently. The increased charges have been agreed to by the officials of the company and the city, and are declared reasonable in face of war conditions.

"Gas will be sold and delivered in the cities of Providence and Cranston, and the towns of North Providence, Johnston, Smithfield, Warwick and East Providence, except the Riverside district, to all consumers at the following rates:

"For the first 5,000 cu. ft., $1.10 per thousand gross, $1 net.

"For the next 5,000 cu. ft., $1.05 per thousand gross, 95 cents net.

"For the next 40,000 cu. ft., $1 per thousand gross, 90 cents net.

"For the next 75,000 cu. ft., 95 cents per thousand gross, 85 cents net.

"For the next 125,000 cu. ft., 90 cents per thousand gross, 80 cents net.

"For all in excess of 250,000 cu. ft., 85 cents per thousand gross, 75 cents net.

"Gas will be sold and delivered in the Riverside district of the town of East Providence to all consumers at the following rates:

"For the first 5,000 cu. ft., $1.25 per thousand gross, $1.15 net.

"For the next 5,000 cu. ft., $1.20 per thousand gross, $1.10 net.

"For the next 40,000 cu. ft., $1.15 per thousand gross, $1.05 net.

"For the next 75,000 cu. ft., $1.10 per thousand gross, $1 net.

"For the next 125,000 cu. ft., $1.05 per thousand gross, 95 cents net.

"For all in excess of 250,000 cu. ft., $1 per thousand gross, 90 cents net.

The discount of 10 cents per thousand cubic feet will be allowed on gross amounts of monthly bills rendered under this schedule, if such bills are paid within fifteen days from the date of the bills.

"A minimum rate of 50 cents per month will be charged, subject to a refund if the consumer's bill exceeds $6 per year.

"The above rates effective from March 1, 1918, and will apply to all bills rendered on and after that date."

This schedule of rates is conditioned upon the understanding that until normal conditions obtain the rates are based upon an average B.t.u. standard of 580. At such time as the company shall commence the extraction of toluol, the matter of the establishment of a suitable standard will be considered by the commission.

New Boiler Rates at Dallas Approved

About fifteen Dallas business men met in the City Hall recently and approved the new schedule of boiler rates to be charged certain gas consumers in the city after April 1.

The new boiler rate is a minimum of 25 cents per 1,000 ft. for any amount less than and including 250,000 cu. ft. For a consumption greater than this amount the rate is 15½ cents. There will be no change in the residence consumption rate of 50 cents per 1,000 ft., with a 10 per cent discount if paid within ten days.

The new rate was explained by Supervisor M. N. Baker, Engineer Lewis and H. C. Morris, manager of the Dallas (Tex.) Gas Company. They explained that the gas company is earning less than 5 per cent on its investment, and that no dividends have been paid since 1907.

Rate Increase Granted at Rhinelander, Wis.

Following the recent hearing at Madison, the Wisconsin Railroad Commission decided that the Oneida Gas Company, of Rhinelander, Wis., is entitled to increase its rates.

The commission finds that the rates charged by the company at present are inadequate and that the proposed rates are not excessive.

The company is therefore authorized to discontinue its present schedule of rates and substitute for it the following: $2.00 gross, $1.80 net per 1,000 cu. ft. Minimum charge 50 cents a month.

The commission retains jurisdiction in this matter and may amend or modify these rates as the circumstances may warrant.

State Utilities Commission's Action an Indication that It Considers It Has Power Over Chicago Rates

A controversy of years' standing between the city council of Chicago and the Public Utilities Commission of Illinois, as to which has the power to create and regulate rates for gas service in the city of Chicago, has broken out afresh as a result of the commission's decision last week on the petition of the Peoples Gas Light & Coke Company, of Chicago, for an emergency increase in rates.

The outcome of this controversy is of more or less interest to every municipality in Illinois in which there is a gas company, for it revolves around the interpretation of the act which created the State utilities body.

Though the commission declined to grant the Peoples gas company's plea for higher rates at this time, it not only announced it would proceed with hearings on the petition of the gas company, but declared in unmistakable terms that it and not the city of Chicago has the power to fix gas rates. The attorneys for Chicago, of course, opposed strenuously the request of the Peoples company for increased rates. But they fought even more desperately for recognition of the right they claimed to fix maximum gas rates. In fact, when it became apparent that certain members of the commission were of the opinion that the State body and not the city had that right, the attorneys for the city did their best to induce the commission to overlook the question of jurisdiction in the Peoples case.

The commission, however, felt otherwise, and rendered the following decision:

The commission is of the opinion it has exclusive jurisdiction of the subject matter of this application. It is further of the opinion that the public utilities act repealed the act of 1905, which sought to give to the city of Chicago the right and power to prescribe and fix the maximum charges for gas and electricity.

The commission, however, holds at this time: That for the reason there actually was an agreement, evidenced by an ordinance, entered into between the city of Chicago, acting through its city council, and the Peoples Gas Light & Coke Company, acting through its proper officials, which ordinance was passed by the city council of the city of Chicago on June 25, 1917, and accepted by the Peoples Gas Light & Coke Company on July 31, 1917 (the legal effect of which agreement and ordinance we are not now passing upon), and thereby there was an agreement that the present rates for gas should be tested for one year, the commission, while it hereby overrules the objections filed to the consideration of the petition, will proceed with a hearing on said petition filed by the Peoples Gas Light & Coke Company, but no change in rates or standards of service from those now in effect will under any circumstances be permitted to become effective prior to the expiration of the aforementioned twelve month experimental period, ending July 31, 1918.

La Salle, Ill., Company Filed a New Application to Raise Rates

A new attempt to secure an increase in rates for gas service in La Salle has been started by the Citizens Lighting Company, which has filed an application with the State public utilities commission, according to an announcement given out by L. W. Hess, general superintendent of the company.

It was only two weeks previous to the filing of this application that the State utilities board permanently dismissed the application of the company for an increase in rates because of certain technical errors. That action made it necessary for the company to file a new application if they desired a higher gas charge in La Salle.

New Rate Schedule Filed by Lehighton Company

The Lehighton (Pa.) Gas Company has filed a new schedule of rates, which are to become effective on April 1. The rate has been raised from $1.35 to $1.50 per 1,000 cu. ft., and the minimum monthly charge is to be $1.

Watertown Company Withdraws Request for Higher Rate

The request of the Watertown (S. D.) Gas Company for authority to raise the rates being charged consumers from $1.50 to $2 a 1,000 cu. ft., has been voluntarily withdrawn in a brief statement filed with the city auditor.

Increased Rate Filed by Northumberland Company

Notice of a rate increase by the Northumberland County Gas & Electric Company has been filed with the public service commission of Pennsylvania, the new schedule showing an advance of about 10 per cent and becoming effective April 1. Wage increases and big advances in supply costs are given as reasons for the action.

Woburn Rates Increased

Woburn residents are interested in the bill introduced before the House by Representative McKeown, of Worcester, to render invalid any increase in the price of gas until such increase is approved by the gas and electric light commission. The Woburn (Mass.) Gas Light Company raised the price of gas in Woburn on Feb. 1 from $1.25 to $1.50, and after a hearing before the commission Woburnites are now awaiting the decision.

Higher Rate Asked for Belle Plaine, Iowa

Claiming that the increased cost of manufacturing gas has so cut in on their income that there is no longer a profit in the business, the Belle Plaine (Iowa) Gas Company has made application to the city council to have their ordinance amended permitting a higher gas rate to be charged. The present rate is $1.40 per thousand feet consumed.

While the gas company has not yet named a rate which they think would be a just one, it is understood that they figure around $1.75 would be about right. However, they have made a proposition to the council that an expert accountant examine their books and determine what would be a fair rate. The council is understood to favor the plan of employing an expert.

Increase Rate Petition Filed by California Company

The River Bend Gas & Water Company, serving Reedley, Parlier and Kingsburg in Fresno County, and Dinuba in Tulare County, Cal., with gas, has filed with the railroad commission an application for leave to raise its gas rates so that it may pay its operating expenses, set aside a proper amount for depreciation and earn a reasonable rate upon its investment.

The present rates are: $1.25 a thousand cubic feet for consumption of not more than 5,000 cu. ft. a month, and $1 a thousand cubic feet for consumption of more than 5,000 cu. ft. a month.

Sault Ste. Marie Rate Increased 30 Cents

Beginning March 23 the Soo will pay $1.40 a thousand cubic feet for gas. The city commission, in order to save the Sault Ste. Marie (Mich.) Gas & Electric Company from bankruptcy, recently granted a temporary permit to advance the price 30 cents from the $1.10 rate, which has obtained since 1909.

Central California Company Seeks Increased Rates

Application for permission to increase gas rates to consumers in Visalia, Exeter, Lindsay, Porterville and Tulare was filed with the State railroad commission by Susman Mitchell, receiver for the Central California Gas Company. The company cites the higher cost of oil as the basis for its petition, and asks that increases be allowed so that it might earn 6 per cent on its investment.

The rate at present is $1.50 for less than 1,000 ft., with 25 per cent discount, making the rate practically $1.25. The company asks the commission to fix a fair price, which it estimates should be 15 or 20 cents in addition to the present rate.

Rate Increase Sought at Fort Madison, Iowa

Consideration of the request of the Fort Madison (Iowa) Gas Light Company that it be permitted to increase its gas rates was taken up at a special meeting of the city council March 11.

The action of the council follows a request on the part of Manager J. G. Moffett, of the gas company, that he be permitted to come before the council and present his reasons as to why the permit to increase the rates should be given.

The matter was deferred by the council until the next regular meeting of the company to be held the first Monday in April.

Representatives at Conference Recommend Increase for Gratiot County Company

A conference of representatives of the cities of St. Louis and Alma, and villages of Ithaca and Breckenridge, Mich., was held on Monday evening, March 4, at the city court room in St. Louis.

After listening to Mr. Wagner, representative of Gratiot County Gas Company, who explained that on account of the advanced price of labor, materials and coal, the company is unable to do business at the present meter rates, and that unless relief is granted the company must face liqui-

dation, and the county suffer the consequent inconvenience and loss, the representatives recommend an increase.

A very strong support was furnished to Mr. Wagner's argument by reading of letters and messages from President Wilson and the Secretary of the Treasury and Comptroller of Currency.

The representatives recommended to the councils and citizens of the several municipalities represented the adoption of an ordinance or an amendment of the present franchise ordinance, authorizing the Gratiot County Gas Company to charge for gas a rate based upon a sliding scale in proportion to the price of coal, to be determined as follows: $1.25 net price per 1,000 cu. ft. of gas when coal f.o.b. mines costs $1.20 per ton; 7½ cents additional per 1,000 cu. ft. as coal shall advance for each $1 per ton advance, and proportionally for less advance. The maximum price to be $1.40 per 1,000 cu. ft. And that the gas company shall reduce said price inversely to the above as the price of coal shall decline. Such price shall be fixed in periods of three months. The price for a three months' period to be fixed by arriving at the average price of coal during the immediately preceding period of three months.

Personal Notes

E. C. Cutler, of Oakland, has been appointed manager of the plant of the Nebraska Gas & Electric Company at West Point. West Point will be headquarters for towns in the surrounding territory, and Mr. Cutler will have control of the plants at Oakland, Scribner, Hooper, Winnebago and West Point.

E. C. Deal, general manager of the Trinidad (Col.) Electric Transmission Railway & Gas Company, will become general manager of the Springfield Gas & Electric and Springfield Traction companies. Springfield, Mo. Mr. Deal will assume his new duties April 1.

Arthur Prager, assistant treasurer of the Springfield (Mo.) Gas & Electric Company, has been appointed general manager of the Albuquerque Gas, Electric Light & Power Company at Albuquerque, N. M. Mr. Prager has made application for appointment in war service, and unless his application is accepted soon by the War Department he will go to Albuquerque and remain there until he is called for army service. He came to Springfield from Albuquerque, where he formerly was auditor for the company.

W. P. Southard, general maanger of the Albuquerque (N. M.) Gas, Electric Light & Power Company, has been appointed general manager of the Trinidad (Col.) Electric Transmission, Railway & Gas Company, to succeed E. C. Deal.

Charles Card Smith, who had distinguished himself as a writer, editor and historian, died at his home, 286 Marlboro Street, at the age of ninety years. He held the position of secretary of the Boston Gas Light Company for thirty-six years. He was born in Boston, March 27, 1827, and received his education in private and public schools in Gloucester, and Harvard made him an honorary A.M. in 1887.

Edwin Farrow, president and manager of the Electric Light & Gas Company, of Mechanicsville, N. Y., died at his residence at Willow Glen after a short illness at the age of sixty-nine years. He formerly conducted a cotton mill at Willow Glen previous to entering the lighting and power business, in which he had been very successful.

Otto R. Mallat, formerly secretary of the Lincoln (Neb.) Gas & Electric Light Company, has been transferred to a similar position with the Trumbull Public Service Company at Warren Ohio. Ross E. Phillips, who formerly held the secretarial post at Lincoln, has returned there.

Albert M. Grall, Webb City, Mo., representative of the new business department of the Empire District Electric Company, has been made new business manager of the Ashland (Ohio) Gas & Electric Company. He had been in Joplin four years, going there from Denver. The Doherty men in Joplin tendered him a farewell dinner on March 5.

William R. Rhodes, vice-president and general manager of the Northern Central Gas Company, operating in Milton, Watsonton and Williamsport, was recently made manager of the Northumberland County Gas & Electric Company, operating in Northumberland and Sunbury, following a merger of gas and electric companies in central Pennsylvania.

E. E. Clay, whose resignation as assistant manager of the Goshen (Ind.) Gas Company was announced in the Feb. 2 issue of the American Gas Engineering Journal, has accepted a position as manager of the Greencastle (Ind.) Gas & Electric Light Company.

James Ball, assistant treasurer and assistant secretary of the United Gas Improvement Company, and treasurer of many corporations affiliated with the U. G. I., died recently at his home, 1907 South Broad Street, Philadelphia, Pa. Mr. Hall was born in England July 17, 1844, and came to this country about thirty years ago. He had been engaged in the mercantile business in England, and on coming here joined the U. G. I. as bookkeeper. He was expert in financial matters, and his rise in the company was steady and his responsibilities constantly increased with the rapid growth of the organization. He has held his present office in the company twenty years.

Societies and Associations

The Michigan Gas Association will hold its annual convention in Detroit, Mich., in September. No definite dates were set. Detroit was selected at a recent meeting of the executive committee.

The Springfield (Mass.) Gas Light Company employees held a meeting recently in Memorial Hall. Supper was served by the Women's Relief Corps. Immediately after the supper the meeting was addressed by Manager Wallace H. Bradley, who explained the different classes of insurance which the company offers to its employees. He also discussed other topics of interest. Officers for the Employees' Relief Association were elected as follows: President, Arthur S. Hall; vice-president, William St. Germain; secretary, William E. Sheehan; treasurer, Robert Todd; auditors, Marion Kilner and W. H. Bradley. A collection was taken up for the Union Tobacco Fund, which netted $11.83.

THE ILLINOIS GAS ASSOCIATION, during the past year and at the time of the convention, added the following new members to the association's membership list: Active—L. G. Adams, C. A. Ankenberg, E. P. Bailey, W. C. Buttner, R. A. Cameron, G. C. Carnahan, J. E. Dougherty, E. H. Enander, C. O. Frary, W. P. Heffron, J. E. McGraw, G. S. Nelson, F. K. Ovitz, R. E. Polk, W. D. Roberts, F. W. Sleezer, J. P. Walsh, John Weedon, I. H. Witt. Associate—J. H. Bartlett, Jr., R. L. Benson, Charles Harbison, R. W. McCandlish, Louis Resnick, editorial representative AMERICAN GAS ENGINEERING JOURNAL, and V. J. Wilson. Junior—H. B. Castle, Joseph Grogan, A. C. Johnson.

Construction Notes

New Municipal Gas Plant Discussed at Jamestown, N. Y.

Thomas R. Weymouth, chief engineer of the Pennsylvania Gas Company, met with the members of the municipal gas committee of Jamestown, N. Y., recently, at which time the gas situation was thoroughly discussed. The committee was appointed some time ago following an intimation that the Pennsylvania Gas Company might withdraw its service from Jamestown for the reason that the supply was not equal to the demand. The committee was authorized to secure data concerning the cost of constructing a municipal gas plant and any other information which might be useful to the city in case such action on the part of the gas company should materialize.

Mr. Weymouth explained that the consumption of gas in the city ranged from a minimum of 1,000,000 cu. ft. a day in warm weather to 10,000,000 cu. ft. in the coldest weather. According to his estimates the cost of erecting a plant which would turn out the minimum supply or 1,000,000 cu. ft. per day would be $350,000, and that a plant to turn out the maximum supply of 10,000,000 ft. per day would cost approximately $3,000,000.

The average consumption for the city in a day, he said, was 4,000,000 cu. ft.

Mr. Weymouth was informed after he had finished speaking that the city was considering two other propositions. One the construction of an artificial plant at the city line to augment the present supply of natural gas with artificial gas, and the other that the company build a gas manufacturing plant of its own at the source of the gas supply in the coal fields. Mr. Weymouth was asked by the members of the committee to take up these two propositions with the gas company and secure figures concerning the costs of these. These would be considered by the committee at a later conference. Mr. Weymouth expressed his willingness to comply with the request.

The price that artificial gas could be supplied to the city, Mr. Weymouth said, he thought would be at present price of coal, about 70 cents per thousand feet.

Alterations Being Made at Westerly Plant

Extensive alterations are to be made to the plant of the Westerly (R. I.) Light & Power Company on Canal Street in preparation for the doubling of the gas producing capacity of the plant. The roof on the brick building is to be raised 7 ft. and a new gas set is to be installed. Lewis A. Joslin, of the West Side, has the contract to make the alterations on the building.

This work is preliminary to the installing of new and larger gas mains, a note on which appeared in the Feb. 23 issue of the AMERICAN GAS ENGINEERING JOURNAL, on Canal, High, Broad and Main Streets.

Company Enlarges Plant at Butte, Mont.

Yielding to a heavy demand for "more gas" created by an increasing population, the Montana Power Company has enlarged its gas plant in Butte. A new gas bench with six large retorts is now capable of meeting any emergency call and of supplying fuel in any quantity.

A new roof valued at $500 has also been erected.

Permits Asked for Two Gas Producer Buildings

The Procter & Gamble Company recently applied to Building Commissioner Rendigs for permits to build two gas producer buildings for its plant at Ivorydale, Ohio, in connection with its factories there, one to cost $12,000 and the other to cost $14,000.

Permission Granted Wilmington Company to Lay Main

Upon application of the Wilmington (Del.) Gas Company to the New Castle County Levy Court recently, permission was granted the company to lay gas pipe under the new road at Prices Corner.

To Rebuild Pipe Line at Bristow

Joe Abraham, the principal owner of the Bristow (Okla.) Gas Company, will rebuild his entire pipe line into Bristow during the coming summer, making it large enough to supply both the domestic and industrial concerns there next winter. The present pipe line is insufficient to convey gas into the town.

Work will begin on the reconstruction of the new line in a short time, as quite a bit of it already is now in, and where the line is now too small it will be enlarged and made the same size all the way into Bristow.

U. G. I. Plans Expansion for Winter

To prevent a repetition of the present winter's experience, when because of the coal shortage consumers swamped the gas-producing facilities of Philadelphia, the United Gas Improvement Company is considering expanding its plants to allow of greater production next winter.

To this end the company's engineers are investigating the probable amount of gas the company will be called upon to furnish during the next year. It was said by officials recently that three factors principally were involved—how far coal supplies are guaranteed for the present population; what the probable growth in population may be, and the amount of gas oil the company may be able to get to use in gas manufacture.

The situation this winter was such that the capacity of the plants, of 52,000,000 cu. ft. a day, was overused to the extent of more than 6,000,000 cu. ft. on some days early in January, and the company was forced to depend on the reserve stock in its tanks.

Outside of the anticipated increase in population another factor has entered into the situation. That is the

proposed housing settlement for Hog Island workers in the Fortieth Ward. For the houses to be built in this section, it will require 90,000,000 cu. ft. of gas a year, according to figures of engineers.

The company intimated that it may be some time before the engineers submit their full report, but if anything is done the extensions will have to be started early in the summer.

It may become necessary for the Government to issue special priority orders to get whatever materials needed out of the mills, officials said.

THE ST. LOUIS COUNTY GAS COMPANY issues the following report for the month of February, 1918; also comparisons with same month of 1917:

Macon Company Will Make Big Improvement to Reduce Cost of Production

An addition to the works of the Macon (Ga.) Gas Company, costing $40,000, will be ready to serve consumers by Sept. 1. This is the second addition to the plant in the past year, and will triple the former capacity of the plant, making possible an output of 30,000,000 cu. ft. or more of gas each month.

The addition is made for the purpose of reducing operating costs which have "sky-rocketed" during the past two years. It is only by the installation of the most modern and economical equipment that the company hopes to avoid an increase in the price of gas.

Mr. Magraw, general manager of the company, stated that the new equipment would make available 20 tons of additional coke each day during the winter, so there will be less danger of a fuel shortage such as had the city in its grip last year.

This new expenditure brings the investment in the gas works up to nearly a million dollars.

The construction of the plant will be done by the Parker Russell Mining & Manufacturing Company, of St. Louis. This company is in charge of the work now nearing completion at the gas works.

Rate Increase Sought by Evansville Company

An increase in gas rates of from 10 to 20 cents a thousand feet the Public Utilities Company, of Evansville, Ind., deems necessary during the war period to enable it to maintain its present service to the public.

CONDENSED INCOME ACCOUNT, FEB. 28, 1918

	Feb. 28, 1918	% + Or —	Feb. 28, 1917	Two Months Ending Feb. 28, 1918	% + Or —	Two Months Ending Feb. 28, 1917
Operating revenues	28,669.45	21.7	23,556.13	59,505.80	23.7	48,100.25
Operating expenses (total)	25,170.32	23.9	20,314.52	53,792.13	36.0	39,564.19
Ordinary operating expenses	22,623.58	19.1	19,010.15	47,934.73	28.1	37,408.29
Maint. and depreciation (reserve credit)	1,830.02	127.9	715.47	4,369.76	358.3	953.40
Taxes	716.72	21.7	588.90	1,487.64	23.7	1,202.50
Net operating revenues	3,499.13	7.9	3,241.61	5,713.67	33.1	8,536.06
Non-operating revenues	630.07	13.9	553.24	958.27	23.9	1,259.98
Gross income	4,129.20	8.8	3,794.85	6,671.94	31.9	9,796.04
Interest charges	3,686.28	7.7	3,421.73	7,439.63	9.1	6,816.97
Miscellaneous charges	326.33	3.7	314.68	651.29	4.5	623.18
Net income	116.59	99.5	58.44	1,418.98	160.2	2,355.89
% per annum earned on common stock	0.017		0.008	0.203		3.36

CONDENSED BALANCE SHEET, FEBRUARY, 1918

Assets		Liabilities	
Property and plant, general account	$1,500,912.69	Capital stock—common	$700,000.00
Capital expenditures, current fiscal year	681.37	Funded debt	995,000.00
Treasury bonds	273,200.00	Accounts payable	168,671.21
Sundry investments	25,062.62	Matured interest unpaid	7.50
Reserve, sinking and special fund assets	15.00	Deposits	3,559.60
Cash	27,105.38	Sundry current liabilities	272.22
Notes and bills receivable	115.00	Taxes accrued	7,260.26
Accounts receivable	41,716.33	Interest accrued	14,969.09
Material and supplies	70,770.98	Sundry current liabilities	430.89
Sundry, current assets	2,060.83	Open accounts	18,570.47
Prepaid accounts	1,114.90	Reserve, sinking and special funds	127,547.95
Open accounts	37.89	Income account, current fiscal year—surplus	1,418.98
Bond discount and expenses	129,953.82	Profit and loss—profit	37,800.82
	$2,072,671.03		$2,072,671.03